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NEWSPAPER

Skylab to Carry More Tape in Orbit

CAPE CANAVERAL, Fla. — The largest store of film and computer tapes ever supplied for a Skylab mission was scheduled to go into orbit last week.

Meanwhile, the 20,000 Earth photographs and 25 miles of computer tape obtained during the two previous Skylab flights will be undergoing extensive analysis by 137 principal investigators and their staffs in the U.S. and 18 foreign countries.

Although 25 reels of magnetic computer tape were stored on the Skylab space station before its launch May 14, only seven remain. The second crew used 13 reels — about 18 miles — of the 28-track computer tapes as they completed a total of 39 Earth Resources Experiment Package (EREP) passes, 13 more than originally planned. The final command module will carry seven additional reels to the space station, for a total of 14.

Richardson Explains Delay In History File Safeguards

BOSTON — In "probably the last letter he wrote as attorney general," Elliot L. Richardson explained to Massachusetts Gov. Francis W. Sargent the reasons for the delay in his preparation of regulations to safeguard the operation of the FBI's Computerized Criminal History file (CCH).

Richardson attributed the delay to the need for "close coordination" in preparing the regulations and "my insistence that they not be inconsistent with legislation." He further wrote: "I have, however, communicated my sense of urgency to the Office of Management and Budget and I'm hopeful the legislation will be submitted this session."

Now that Richardson has resigned as attorney general, however, "I don't know that it's ever going to happen," said Andrew Klein, aide to Sargent. "We'll have to push harder now and we may have to educate a new attorney general."

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Judge Eases IBM's Fines, Injunctions

By E. Drake Lundell Jr.
Of the CW Staff

TULSA, Okla. — Judge A. Sherman Christensen has reduced by \$93 million the amount of damages IBM must pay Telex for its violation of the antitrust statutes and significantly weakened the injunctions he originally imposed on IBM.

Nevertheless, the judgment against IBM still calls for a hefty payment of \$259.5 million, three times the actual damages found of \$86.5 million caused by the IBM monopolization of the plug-compatible peripherals market.

At the same time, part of the IBM appeals strategy was spelled out Nov. 10 when the judge released his amendments to the findings of fact and conclusions of law as well as the awarded judgment and decree.

And, most important to the rest of the industry and computer users, Christensen granted an IBM request to expedite the appeal in the case — meaning that the decision will be out of the appeals court sometime next year and on its way to the Supreme Court, possibly in time for its fall 1974 session.

Injunction Changed

In the area of injunctions, the judge banned IBM from "entering into or enforcing any contractually specified termination charges or liquidated damages...because of termination of any long-term lease agreement" for peripheral equipment for the next three years.

Originally, Christensen had banned IBM
(Continued on Page 2)

HEW Privacy Guidelines Gain

By a CW Staff Writer

WASHINGTON, D.C. — A bill that would enact the major recommendations of the recent HEW Committee on Privacy of Information in Personal Data Systems is quietly picking up steam in the House of Representatives here.

Introduced over a month ago by Rep. Barry Goldwater Jr. (R-Calif.),

Other stories vital to privacy and data banks begin on Page 22.

the act, which is designed to "provide standards of fair personal information practices" (H.R. 10042), has been cosponsored by 17 other members of the House — and hearings may be held before the end of the year to debate the provisions.

The bill would put Congress on record as finding that "an individual's personal privacy is directly affected by the kind of disclosure and use made of identifiable information about him in a record" and is aimed at insuring "safeguards for personal privacy from recordkeeping organizations" by a set of specific proposals and regulations.

First, like the HEW Committee be-

fore it, the bill states, "There must be no personal data recordkeeping systems whose very existence is secret."

The bill also states that citizens must be able to find out what information is stored on them and specifically how it will be used by the recordkeeping organization. It would give individuals the right to prevent information gathered about them for one purpose from being used for any other purposes.

There is also a provision for an individual to correct any mistake in the record or at least amend the record so that it reflects his disagreements with it.

The bill would also require all data bank operators to "assure the reliability of the data for their intended use" and to "take reasonable precautions to prevent misuse of the data."

In addition, it spells out fines of a minimum of \$10,000 and prison sentences in some cases for data bank operators who violate the law.

The bill, however, does not go as far as the proposal by Rep. Edward Koch (D-N.Y.), which is modeled closely after Swedish law and would establish

(Continued on Page 4)

User Cites Results

Touch-Tone CRT Costs \$750

By Ronald A. Frank
Of the CW Staff

SANTA CLARA, Calif. — A low-cost display that turns any pushbutton phone into an interactive terminal for inquiry response applications could significantly cut costs for current conventional CRT terminal users.

The small CRT that uses a Bell Touch-Tone telephone as its keyboard has been introduced by Plantronics, Inc. and is being tested by a Seattle bank.

Initial tests by one of the first users show that 97% of all inquiries can be handled on the small displays without relying on larger CRT terminals.

64-Character Display

The Comset DS-150 Visual Data Terminal can display up to 64 Ascii characters using a standard 5x7 dot matrix. It is attached to a Touch-Tone or other push-button phone through an "appliance control unit" which connects to the side of the phone through eight leads and acts as an interface between the two devices.

The control unit transfers the off-hook switch away from the handset and to the CRT so an operator can wait for a CPU-generated response to be displayed while the handset is on the phone.

In a typical inquiry, the operator dials the CPU, using the phone in the conventional manner. After a tone acknowledgment that the connection has been made, the operator enters an account number or other reference data about which information is desired.

The handset is then replaced, and the control unit switched on. This transmits a data set ready signal to the CPU. And the answer to the inquiry is then sent to the CRT at 300 bit/sec and displayed on the screen. Data is displayed in four lines of 16 characters each. A paging capability can be included in the display under software control from the CPU.

Seattle Test

The CRT has been under an initial test at the First National Bank of Seattle for
(Continued on Page 4)

Energy Crisis, Fewer Supplies May Leave Users Out in the Cold

By E. Drake Lundell Jr.
CW Washington Bureau

WASHINGTON, D.C. — The nation is facing a serious energy shortage and computer users could face some harrowing months this winter.

Most users realize their sophisticated electronic systems with air conditioning and humidity controls are large users of electricity, but many are not aware of other possible petrochemical-related shortages that could occur in the supplies area, particularly tapes and disks.

What's

Ahead?

In the supplies area, most major suppliers indicated they were "not in trouble" yet, but admitted they were expecting at least a "pinch" in the supply of solvents — petrochemical-related products — which are used to bind the ferric-oxide coatings to computer tapes and disk packs.

In addition, the suppliers admitted there might well be a "crunch" in the availability of the mylar and other petrochemical-related plastic bases that make

up computer tapes.

In the area of solvents, the manufacturers said that firms with solvent recycling plants might be in better shape than those without those facilities, at least for the short run.

Solvents Drying Up?

These solvents are mixed with the ferric-oxide that coats tapes and disks, so if they run out, the supply of tapes and disks available to users could dry up later this winter.

Mylar and other plastic material are already growing short, even though computer tape suppliers contacted recently said it had not affected them.

But, if that's true, they may be the only plastic users who are not yet feeling at least some shortage, since 30 plastic plants have had to shut down in the past few weeks due to shortages of petrochemicals needed to produce plastic.

Blackouts

The fuel shortage and the spectre of brownouts and blackouts do threaten this winter — and some energy experts here
(Continued on Page 2)



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Judge Softens Damages, Injunctions

(Continued from Page 1)

from any long-term leasing penalty payments for all equipment and for an indefinite time in the future.

At the same time, he required IBM to "make available on request, at the time of first customer shipment of an IBM CPU or its channel, information describing the design of the electronic interface for such product."

IBM will have to keep supplying its manuals on interfaces as it has in the past and will not have to release the interface information any earlier than it has done before, although some industry people feel it might be required to release slightly more information than before.

In the area of damages, the judge found Telex had suffered actual damages of \$117.5 million "as a proximate result of IBM's unlawful acts and conduct" — as he found originally — but he then adjusted that figure to take into account Telex's unlawful conduct in the area of trade secrets and the effect of the injunctions.

He deducted \$6 million as a "fair approximation" of the corrective effect of the injunctive relief he granted in the case

Denver Court Gets Appeal

TULSA, Okla. — With the final judgment in the IBM-Telex case entered here, the focus of the action will now shift to the Tenth Circuit Court of Appeals in Denver which will hear the appeal — and apparently is prepared to act quickly.

The Tenth Circuit Court is known among lawyers as a court that traditionally takes quick action on appeals. This process should be further speeded by an expediting order granted by the judge at the request of IBM.

Ruling Still Erroneous: Cary

ARMONK, N.Y. — Frank T. Cary, IBM chairman, commenting on the revised decision, said that "although the court has reduced the damages by \$93 million and significantly modified the injunctive relief granted to Telex, we continue to believe that the basic ruling against IBM is erroneous both in its theory of antitrust law and its interpretation of IBM's practices."

"We intend to ask for a reversal of the antitrust decision in the appeals court," Cary continued, "on the basis

that IBM has competed fairly and within the law. In this connection it is noteworthy that Judge Christensen stated in granting IBM's motion for expedited appeal that the case involves a 'controlling question of law as to which there is substantial ground for differences of opinion, in that an immediate appeal from said orders and the foregoing judgment as a whole and each part thereof may materially advance the ultimate determination of this litigation.'

and another \$17.5 million "which represents the best available quantification of the competitive advantage unlawfully obtained by Telex" through its trade secret violations.

Another \$7.5 million was deducted for trade secret violations that were not included in his original quantification of the Telex trade secret violations.

"Accordingly . . . it is found that \$86.5 million represents a fair and reasonable approximation of plaintiffs' actual antitrust damage approximately caused by the unlawful conduct of the defendant," the judge said.

In the area of memory pricing, Christensen then required IBM to price separately 370 memories "which are not a single product with the central processing unit."

As part of the revision he also required IBM to "price separately its separate EDP products, including but not limited to CPUs, memories . . . tape products and their controllers, disk products and their controllers, printer products and their

controllers."

On integrated controllers and other integrated products, he required IBM to "continue to price their integrated version separately from the product into which it is integrated" and required the firm to make a "good faith effort" to apply a uniform profit objective to both the integrated device and its stand-alone equivalent.

In addition, Christensen enjoined IBM "from adoption implementing or carrying out predatory pricing leasing or other acts, practices or strategies with intent to obtain or maintain an illegal monopoly in a relevant market for EDP peripheral equipment plug-compatible to its CPUs or any relevant submarkets thereof."

But Christensen also spelled out that only Telex could bring action against IBM to force compliance with the injunction, in effect closing out the possibility of other firms in the industry filing for enforcement of the regulations — and he limited their effect to the U.S. only.

Shortages May Leave Users in the Cold

(Continued from Page 1)

are predicting the crisis might actually last for several years.

Previous experience has shown that computer installations can suffer great, sometimes irreparable, losses of data when an unexpected blackout occurs, thereby preventing the center from going through its normal "cycling down" routine.

Before the Arab-Israeli War, the planners here were predicting the U.S. would be about 100,000 barrels of oil short every day through the winter — a crisis, but one that could be met with only minor reworking of the oil reserves.

The U.S., however, was then importing about one million barrels of Arab oil daily which has now been cut off indefinitely.

At the same time, the U.S. was importing about one million barrels of gasoline and fuel oil from Europe daily which has

now also almost come to a standstill as the Arabs are reducing their European exports.

And because of this, the country faces a shortage that is running at a rate of at least 2 million barrels of oil each day at the present time.

The electric utilities are the largest

single users of this oil, thus accounting for between 25% and 30% of the oil used in the U.S. daily.

The short supplies to these utilities may force some to reduce services temporarily thus causing brownouts, and there is a definite possibility of some major blackouts this winter, experts feel.

Kennedy Asked to Review Codap

BOSTON — Massachusetts Gov. Francis W. Sargent has asked Sen. Edward M. Kennedy (D-Mass.) to review the controversial drug patient data bank which Sargent believes threatens individual rights.

In a letter, Sargent asked Kennedy to investigate the Client Oriented Data Acquisition Process (Codap) in his role as chairman of the Technological Assessment Board, a new congressional agency set up to review federally funded projects

which employ computer technology.

The Codap system collects coded information on drug patients. Critics contend that the information requested under the program, when interfaced with other government data banks, can yield the identities of the patients [CW, Aug. 15]. Massachusetts is temporarily exempted from supplying Codap information as a condition to receiving federal funds for drug treatment programs.

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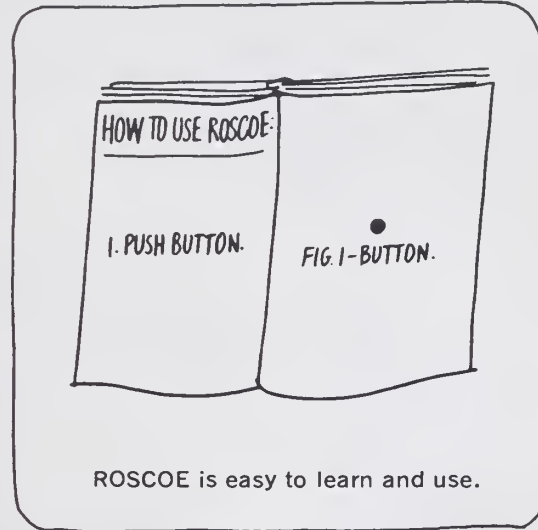
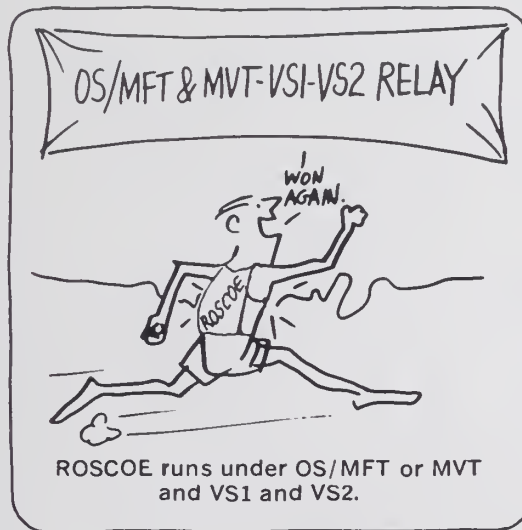
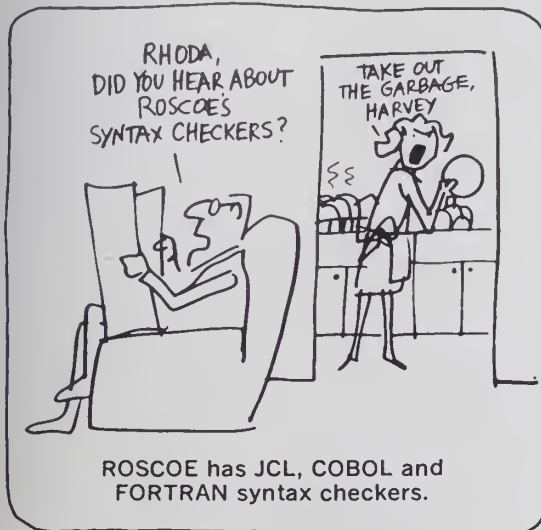
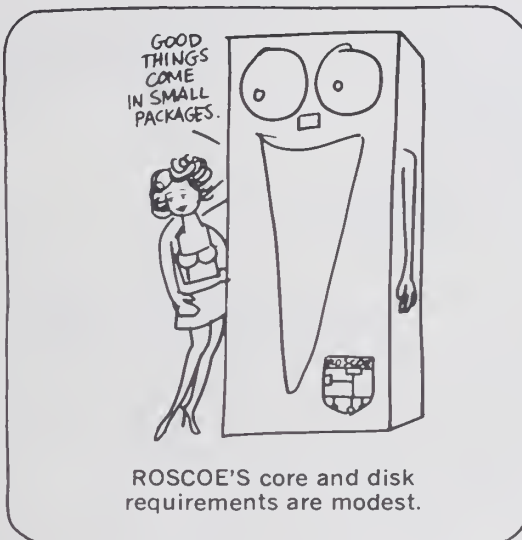
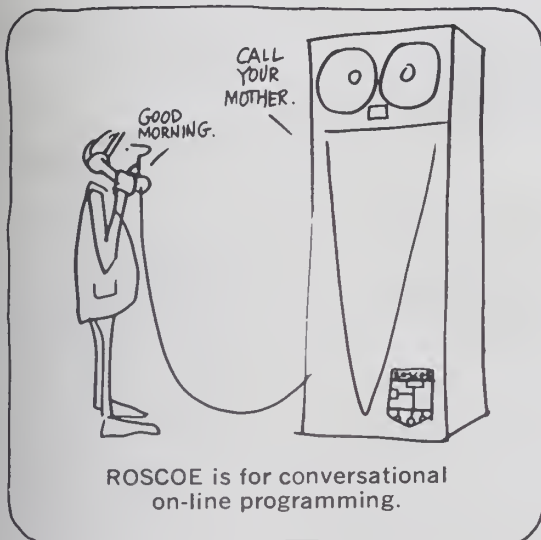
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Data Bank Possible for Suicidal Types, Mentally Ill

By Marguerite Zientara
Of the CW Staff

DAVENPORT, Iowa — The names of "severely mentally disturbed persons" and those who "exhibit suicidal tendencies" may be included in a proposed computerized criminal justice information system for the Quad-City area of Davenport and Bettendorf, Iowa, and Moline, East Moline and Rock Island, Ill.

The Quad-Net system, expected to be operational early next spring, will include data on stolen property, names of persons on parole and records on traffic tickets, vehicle registrations, driver's licenses and registered firearms. These categories were approved last month by the Quad-Net Security and Privacy Committee, a group set up to screen the kind of information put into the computer in order to safeguard individual rights.

Information dealing with suspected criminal activity that is not supported by actual records will be excluded from the computer's data banks, according to

Clifford Brown, director of the Quad-Net project.

The inclusion of mentally disturbed and suicidal persons is under discussion, but hasn't been approved by the security and privacy committee, according to Brown. "The person who is physically or mentally handicapped to the point of being dangerous to himself or others is the category we're interested in," Brown said.

Brown gave three reasons for wanting the information in the system:

- A mentally or physically handicapped person may be unable to protect himself in a fire or other problem situation; information on where he is living should be available.

- It is "very valuable" for law enforcement people to be aware of a person's record of suicide attempts in order to handle him "differently."

- If a person who has severely assaulted people and who is at the point where he can't look after himself is out on the street,

his name should be in the file. This might save a police officer's life by alerting him to take "more than basic care" with this person.

"The problem is in determining valid sources of this information, whether they be physicians or the subject's own family," Brown said. "We won't be inputting this information until we've figured out the mechanics of it and how to protect the information once it's in there."

"If we were considering minor mental problems, I'd say we were invading the privacy of the individual. It would be very much a mistake to do that."

When asked if the subjects would be aware that their names were in the system, Brown replied, "In the mental problem situation, they're probably at a level where it wouldn't have any meaning to them."

The system would be linked into the state systems of Iowa and Illinois (Travis and Leads) and through them into the FBI's National Crime Information Center (NCIC), according to Brown. However, the information on handicapped persons would not be available to other states hooked up to NCIC, according to Brown. "It would be available locally. We can restrict

access to our information and normally much of our file would not be going beyond our local departments.

"We'll be conforming to certain restrictions of NCIC and the states' systems in order to be tied in with them," Brown said.

Most of these restrictions would be generated by the states, such as Iowa's Senate file 115 legislation passed last July which calls for dispositions of arrest records, penalties for the misuse of information and a confidential records committee, Brown said. The committee will be one group to consider the approval of the mental health aspects of the Quad-Net system, he said.

The chairman and assistant chairman of the security and privacy committee are both "ACLU people," according to Brown. "We're trying to solve some of these problems before they happen."

Future plans for the system include a radio communications tie-in for the fire department, police department and ambulance units, in which they would have access only to information relevant to their activities. For example, firefighters would be alerted to such things as any inhabitants unable to save their

own lives, unusual materials stored in a building, information on the sprinkler system of a particular building and the owner's name to contact in an emergency.

An extension of the system would be mobile printers in these units' vehicles so workers could receive the needed information on the way to the call.

HEW Privacy Guides Advance

(Continued from Page 1)

a privacy board to register all data banks and formulate recommendations and regulations on their operation.

The Goldwater proposal, backed as it is by a prestigious blue-ribbon committee report, is given a better chance of passage than the Koch measure by most sources here.

And these sources indicated the Goldwater bill may well become law during the next session of Congress after the congressional election of 1974.

"The mood of the country is right for this type of legislation," one committee source said, "and that has been reflected in the number of cosponsors signing up for this bill."

An A-maze-ing Cure for Traffic Ills

TRENTON, N.J. — The state Department of Transportation here is attempting to monitor by computer a 92-mile maze of roads which will eventually surround the Newark airport.

The computer system, to monitor and route traffic, is scheduled for operation by 1975, but test runs to iron out problems will "hopefully begin toward the end of the calendar year 1974," according to Robert Nolan, state

traffic engineer.

The system will consist of 150 sensors implanted in the pavement at various critical strategic points, such as intersections. Present plans call for the sensors to be connected via telephone lines to a minicomputer. However, Nolan said, if the CPU is located in the state highway offices adjacent to the airport, the sensors could possibly be hard-wired to the mini.

Touch-Tone CRT Cost \$750

(Continued from Page 1)

some time. The bank currently has 45 of the terminals handling about 800 inquiries a day, according to John Watford, vice-president of electronic data processing.

By early next year the bank expects to have 200 of the Comset displays operating at 145 branches, some of which are 350 miles from the central DP site.

The CRTs are used with Touch-Tone phones by tellers who need up-to-the-minute information on customer account status, Watford explained.

A teller can initiate an inquiry by entering the account number on the Touch-Tone "keyboard," and the display unit will then repeat the account number, give the current morning balance as of the start of business that day. Additional data displayed includes a running scratchpad balance that is updated on-line at the bank's Honeywell 6080 mainframe, the date of last deposit and any flags or exception codes setting limits on the account.

The 45 Comset units can be connected through dial-up lines

to two modem ports on a Datatone 355 which acts as a front end to the HIS mainframe.

In comparing the cost of his projected network, Watford said the price will roughly equal the cost of using the phones as input devices with an audio-response system at the central site.

But inquiries are being answered in "less than 15 seconds" compared with a longer response time that would be required with an audio-response system.

Although presently the branches have a journal as a backup, the bank will soon maintain updated account information only on disk at the central site.

The bank is renting the Comset CRTs from the local phone companies in Washington for about \$25/mo to \$30/mo. Because of the distances involved in the bank's network, Watford said he preferred to rely on the phone company for maintenance rather than purchase the display units.

Plantronics will sell the Comset without maintenance for about \$750 for attachment through a Bell data access arrangement, a company spokesman said. The

It Cuts Gas, Too

SEATTLE — In a time of energy shortages, the Comset displays will help the Seattle First National Bank by reducing the number of motor messenger runs made daily to branches.

At present, a journal with all previous day transactions must be delivered by messenger to each branch before the start of the banking day.

When the displays are installed at each branch, the morning messenger run can be eliminated, thus saving time and fuel. A one-day late microfilm journal will be delivered to the banks as a backup in case of system failure. The film will be carried by an afternoon messenger who is needed to pick up checks from each bank.

display is modular and a user could perform his own maintenance by stocking spare circuit boards, the spokesman said.

Additional Bell operating companies and independent phone companies are expected to offer the Comset display in the near future. Plantronics is at 385 Reed St., 95050.

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Top DP Chiefs Next to Lowest Paid in Average Firm

By E. Drake Lundell Jr.

CW Washington Bureau

WASHINGTON, D.C. — The belief that in an information-rich world data processing executives would begin to assume more and more important roles in corporations may be little more than a myth at present.

At least in the area of pay rates, the top EDP executive in most companies rates at the low end of the scale, according to a recent *Fortune* magazine piece on pay rates.

In a chart drawn up from

American Management Association figures, the magazine indicated the top EDP executive is the next to the lowest paid man in the average company, surpassing only the "top transportation executive" for the dubious honor of low man on the pay scale.

PR Ahead

This means, in general, that the top DP man is behind such people as the top public relations executive, the purchasing man, the advertising man and the top industrial relations man as well as everyone else in the company when top management decides on the importance of various jobs in terms of the paycheck.

The *Fortune* figures compare the salaries of various executives in different size firms as a percentage of what the chief executive gets in a company of similar size.

In small companies with from \$10 million to \$25 million in revenues the DP man gets an

average salary just under 30% of what the top executive in the company receives in compensation.

In very large companies the reward to the DP man is even less on a percentage comparison basis, even though it could be more in terms of dollars, of course. In a firm with from \$500 million to \$1 billion in revenues, the DP man receives a salary between 15% and 20% of the top man's salary.

On a comparative basis, it can be noted that in a large company the top public relations and purchasing people are 5% ahead of DP, the top researcher and advertising man 10% better off and the manufacturing man is 20% better paid.

Also, the top financial man gets 30% more as does the top marketing man and the administrative vice-president, while the executive vice-president receives a salary that is 40% higher and the chief operating officer gets paid 60% above the DP's level.

Conference of 'Extremes' Scheduled

NEW YORK — The problem of "too little, too late, too costly" as related to information systems will be examined at a conference entitled "Senior Management and the Data Processing Function," Nov. 26-27, at the Waldorf-Astoria.

Two plenary sessions are planned. The first will discuss "Harnessing Information Technology for Top Management's

Objectives," the second "Managing the Evolving Data Processing System."

Three concurrent panel sessions on people, hardware and software aspects of managing the development process will be held on the morning of Nov. 27.

Further information is available from The Conference Board, 845 Third Ave., 10022.

It's Up to DP Managers to Bridge Gap With Top Management

CW West Coast Bureau

LOS ANGELES — EDP management has to bridge a widening credibility and communication gap with top management, Charles C. Tucker of McKinsey & Co. told an Association for Computing Machinery special interest group for business data processing.

Tucker said EDP management has the responsibility to initiate action to bridge the gap and suggested the following plan:

1. Instill confidence as a "can-do" EDP organization.
2. Cultivate informal communication links with key management team members that EDP must serve.
3. Bring executive management into the decision-making cycle on a meaningful basis.
4. Develop a broader understanding and perspective on the organization, its environment and its key leverage points.
5. Use this foundation to assist top management to achieve its goals — not those of EDP management.

Tucker, an associate in the Los Angeles office of McKinsey, suggested the use of long-range EDP plans to gain management involvement.

He cited a survey of 36 medium- to large-size industrial firms that showed formal EDP planning directly correlated with a higher return from EDP investment.

Tucker said EDP operation is basically a production process and the same basic management procedures are needed to control it.

These techniques, he said, include:

- Formal operating reports to management.
- Formalized means to identify, evaluate and select new systems projects.
- Task-oriented project planning and control system.
- Predefined post-audit procedures.
- A long-range EDP plan.

Formal management processes, Tucker said, provide a vehicle to help achieve top management involvement.

They are also vital to apply to potential improvement areas to aid the cost-benefit ratio of the EDP investment, he said.

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From Gambling ... to Coins

Computer Expected To Un-Handicap Fan

NEW YORK — The day is approaching when a high percentage of winning selections in horse racing will be possible without strain, Tom Ainslie noted in the first issue of *Gamblers World*.

Ainslie, a racing handicapper, said in the magazine, "Computer

studies promise to reveal the actual probabilities of the sport, conferring a statistical advantage on the fan, regardless of handicapping skill."

The impact on racing will be considerable, Ainslie predicted in the article, "Handicapping by Computer." It might attract hundreds of thousands of new customers, he said, each capable of winning more bets than the professional handicappers of our

day.

The magazine is at 527 Madison Ave.

Seismic Tests Make Impact in Coal Mine

AUSTIN, Texas — Cave-ins, the long-time bugbear of miners, may soon be a rare occurrence, thanks to "mini seismic" tests conducted with a minicomputer.

Engineers from the University of Texas are able to detect possible weak spots in the roof of the York Canyon coal mine in New Mexico by using an impact device, similar to a BB gun, to generate shock waves. The waves are picked up by wideband transducers, digitized and processed through a Data General 820 computer for waveform enhancement.

These waveforms allow engineers to identify failure places and fracture zones in the rocks overlaying the mine roof.

Numismatists, Take Note Before Searching

DALLAS — Everyone is saving nickels and dimes these days, but if you have a specific nickel or dime in mind a Texas computer may be able to help you.

Steve Ivy Rare Coin Co. is using an Alpha Systems modified DEC 10 computer system to keep track of its inventory, a file of thousands of coins.

"The computer lets us know instantly if we have the specific coin a customer wants in stock," said Steve Ivy, president. "If we don't, we can go to our teletypewriter system and find it for him." The firm maintains teletypewriter communications with 150 dealers across the nation.

The computer also performs bookkeeping chores and generates reports useful to management in keeping abreast of the rare coin market — that is when it isn't checking on the availability of an 1895 nickel.

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Infrared Photos, DP Used to Study Decline in Life of Peach Trees

EAST POINT, Ga. — One of the U.S. Department of Agriculture's current problems is a matter of life and death — the decline of the life span of Georgia's peach trees.

Researchers at the Engineering Experiment Station (EES) at Georgia Tech are using a television camera and monitor, a computer and color infrared photographs to help find the causes and hopefully a cure for the peach tree decline. The life span of peach trees has fallen from about 20 years to sometimes only five, in just a few decades.

The EES is working in conjunction with the Department of Agriculture using electronic enhancements of photographic images to determine the problem. The infrared transparency is viewed by the television camera and the information in the image is transformed into a digital code so it can be processed by the computer, according to assistant research physicist G. William Spann.

In a process known as multispectral density slicing, the computer sorts out areas of the coded photograph image which "look alike" to it. Each area represents either healthy trees, several stages of declining trees, dead trees or bare ground.

In this way, trees which looked healthy to the eye but are actually diseased can be readily spotted.

Mini Scores 'Strike' In Bowling League

FT. LAUDERDALE, Fla. — A minicomputer is "bowling over" the league secretaries at Dolphin Lanes here. A Datapoint 2200 has been purchased to help alleviate some of the secretaries' extra responsibilities, such as storing bowling scores, league standings and awards.

After a successful trial period during the summer months, the minicomputer is now available to the league secretaries of Broward County's 12 bowling lanes, according to Bob Ritcey, president of West Tech Computer Systems, which developed the system for Dolphin Lanes.

"Two days' work for a secretary is reduced to 40 minutes," with the computer, said Dolphin Lanes proprietor Herm Tillman. The \$30,000 minicomputer is "worth its weight in gold," he added.

Eight cents is charged for each bowler's record. If the volume of bowlers reaches 5,000/wk, "we will break even," Tillman said. The project is not aimed at making a profit, he said.

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New Vote Plan Seen by '76

L.A. Seeks Audit of New Voting System

CW West Coast Bureau

LOS ANGELES — The board of supervisors here has voted to seek bids for an independent firm to audit a new and upgraded computerized voting system for the county.

The county data processing department has been developing new tally programs and the auditor will certify the accuracy and reliability.

The vote followed an election in which a defective tape delayed counting of absentee ballots.

However, officials said, the tape problem was not related to the decision to get bids, which had been previously scheduled to be voted on.

Tape Caper

The defective tape made it impossible to read data regarding absentee ballots. But a backup tape was used to read the information, according to Edgar Hayes, assistant director of systems for the data processing department.

The board of supervisors will also vote soon on the award of a \$242,700 contract to the accounting firm of Arthur Young & Co. for development of a total voting system by 1976. It will provide

flexibility to handle a wider scope of candidates and mandatory statutory changes.

It would also attempt to automate more of the data preparation process, now done mostly manually.

Here's How to Protect Center From Fire Hazard

TORONTO — Is your computer installation secure? Or is it vulnerable to costly damage from the hazards of fire, floods, mechanical breakdowns, fraud and lost programs and data files?

One way to determine the security of your computer system is to check it against the following security "musts" for fire prevention and protection.

- Ensure that all employees are physically able to operate portable fire extinguishers.
- Hold fire drills periodically.
- Connect the fire extinguishing and smoke detection systems to a local fire department, or have them monitored by a protection agency or by the organization's security staff.

- Inspect, for fire hazards, the spaces between structural, recessed and raised floors, and between structural and suspended ceilings, in the computer center.

- Keep a plunger handy in the computer room to lift floor tiles in case of fire between the raised floor and the structural floor.

- Reduce the fire hazard in the computer room by keeping all equipment clean and free of dust.

- Enforce "No Smoking" in the computer room and computer library.

This checklist was compiled by DCF Systems Ltd., 74 Victoria St., Toronto, Ontario M5C 2A5.

Optimum Manholing

NEW YORK — For those who feel like going underground, Electrical Engineering has developed an optimizing program to select manhole locations for new underground transmission feeders.

In a test run, the new program was used to select manhole locations for a new feeder being planned between East 13th St. and East 37th St. in conjunction with construction of a new substation on East 36th St. With subsurface information given, the computer chose two manhole positions which would maintain sidewall pressure and pulling tension within acceptable limits while, at the same time, maximizing pulling length. Preliminary engineering studies had indicated at least four manholes would be needed.

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Anthropologist Gets 'New' Map Assist

BOSTON — A computer-turned-anthropologist is helping a Brandeis professor map the 1,500-year-old pre-Aztec community of Teotihuacan, cataloging artifacts, vegetation and architecture.

The computer program can map out the less obvious concentrations of similar wares, such as incense burners or tools which, Associate Professor George L. Cowgill said, turn out to have quite striking differences in where they're concentrated.

Games People Play

DALLAS — Here's a computer that's really in the swim of things.

Officials at the YMCA are using a small computer to find out which of its athletic and crafts programs are most popular with the 150,000 people it serves in the metropolitan area.

An IBM System 3/10 is used to track income, expenses and participation in the almost 6,000 programs offered at the 17 local YMCA branches.

The computer will help officials decide if a particular sport or craft should be started or terminated, according to Ron Keneipp, YMCA controller.

The computer, according to Cowgill, while performing some functions which could be done manually on a small scale, permits large-scale plotting of the ratio of stone tools to pottery, or the relative changes between one period and another in terms of the total pottery inventory.

"This kind of evidence can be fitted in with other evidence we've gotten in the course of the survey," Cowgill said, "and the results raise questions or pinpoint areas where it might be useful to follow up our surface survey by excavating."

The computer will also be used to compute correlation coefficients, according to Cowgill, to ascertain whether pottery griddles, for instance, are highly correlated with some pottery type.

Periodicals Delivered Fast

Special to Computerworld

CANBERRA, Australia — The Australian Government Publishing Service has automated the dispatch of government publications.

Customer names and addresses are coded and recorded on magnetic tape from which the computer will automatically select and print the addresses required for each publication. The computer will also prepare subscription renewal notices.

Minis Check Flight Test Instruments

ST. LOUIS, Mo. — McDonnell Douglas Corp. is using seven minicomputers to program and evaluate flight test instrumentation data channels aboard the new Air Force F-15 fighter.

The minis are mounted in movable carts that wheel around the flight-line and connect to F-15 aircraft through two cables. They make complete checkout tests on about 800 data points.

Cards Loaded

The instrumentation configurations are defined by a deck of punch DP cards which is loaded into the portable cart just before take-off. The Nova 1200 mini samples all data channels defined by that particular card deck, computes average values and deviations from these average values and compares them with predetermined limits. The results are printed in several different formats that can be selected by the operator.

The systems were ruggedized and developed by SCI Systems, Inc., of Houston, Texas. The systems include a Nova 1200 with 16K words of core memory, card reader, line printer, operator's panel and data acquisition equipment.

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Editorials

A Success...

We are seeing a remarkable triumph of informed concern. The privacy issue six years ago was a cloud no bigger than a man's hand, a debating topic for computer intellectuals.

Today we see action on several fronts, proposed action everywhere, sophisticated discussion in the world's great newspapers and magazines, technical and financial support from IBM, and, above all, genuine public interest.

The British Tax Credit project, which is to integrate tax deductions and social payments, is being planned under "strict rules especially concerning the privacy issue," says the responsible Minister. Support for the HEW report evidences equivalent attention in Washington.

In Tokyo, in Strasbourg, in national and state capitals, in Goldwater and Ervin country, proposals to underlay information processing practices with a foundation of constitutional and specialized law are being considered. Professors Miller and Westin, and their counterparts overseas, have mustered a sizeable cadre of lawyers

To repeat, a triumph of *informed* concern. The computer media, the professional societies, the university and foundation figures, the perceptive newspaper and TV reporters kept interest alive and growing.

Our public, and citizens in other countries — potential victims of malignant information handling — reacted, and so in turn have the legislators.

There remains much discussion; the questions of state versus federal protection, the abuse of identification numbers, registry of personal data systems. The interaction with the technical area of security which concerns manufacturers and DP professionals is in process.

But the momentum, the public attention, the political excitement has been generated. It will be a close race, with police systems and credit systems threatening us all. But it is not too late!

...And a Failure

The management of IEEE, the Institute for Electrical and Electronic Engineers, has announced the results of a referendum which "reaffirmed the confidence of the members in the existing structure." It had been proposed to further separate technical activities from professional ones, and the Computer Society was obviously moving in the direction of greater independence.

We note that less than a quarter of the membership voted. We note that the Computer Society response was not broken out. Nevertheless, it is clear that a great many IEEE people are satisfied with things as they are, or are more worried about transferable pensions than high technology.

The day of the American Computer Society has not yet dawned, at least in hardware country.



Neither Bureaucratic Nor Entrepreneurial System Analysts Need Business Training

By Kenniston W. Lord Jr.

Special to Computerworld

George K. Staropoli, in his recent article on systems analysts [CW, Oct. 17], presented a very binary view of those creatures, labeling them as clearly "bureaucratic" or "entrepreneurial." He obviously favored the latter and charged management with the responsibility to permit the entrepreneur to function.

I think I know something about systems analysts, having spent roughly a third of my 12-year EDP career training them. I can tell you, from a unique point of view, that "it ain't necessarily so!"

On the Middle Ground

Add that time to the time I spent as a systems analyst, and I

To be a successful systems analyst, he must know about the business of his firm. I find consistently that the analysts I train do not have sufficient knowledge about their firm as to know precisely what business it is in.

feel I can safely attest to the fact that systems analysts are neither bureaucratic nor entrepreneurial. In fact, they may be a rather mediocre middle ground between the two.

It's time, I believe, for American business to wake up to the fact that real analysts are a special breed of people who should be selected against unique criteria and then trained, nurtured and measured on their problem-solving abilities.

Aussie DP Attractive?

An article in the Oct. 31 issue on the need for data processing personnel in Australia drew an overwhelming response from readers desiring to know the addresses of the placement firm.

American-Australian Executive Placement Pty. Ltd. is at Box 1886, G.P.O., Sydney, Australia, 2001, telephone 28-7655 or 28-2351.

We have backed ourselves into some very tight corners. We take someone, fresh out of a programming school, and put him to work. The only training he gets is that which is necessary to keep him abreast of the hardware and software changes inherent in our organization. Business involvement is not part of that curriculum.

When he has spent a number of

Viewpoint

years in programming, we seem to run out of ways to reward him, so we "reward" him by changing his job. We make him an analyst.

This procedure produces analysts who fall into the bureaucratic category described by Staropoli. It's easy to understand. For years, this person has been working in a very structured environment, using procedures which have been devised purportedly to thwart individualism and creativity in the name of efficiency. Small wonder that his questions take the form of: "What kind of computer system do I need?", rather than, "Do I really need a computer system?"

When business finally wakes up to the fact that the move to the position should not involve or be viewed as a promotion, this trend will be arrested. Now look at the situation we have. We have an ex-programmer, with hundreds of hours invested in the training of him as a "byte-freak."

My Firm — What Is It?

To be a successful systems analyst, he must know about the business of his firm. I find consistently that the analysts I train do not have sufficient knowledge about their firm as to know precisely what business it is in.

With no knowledge, they abdicate their responsibilities. With no knowledge, there is no commitment to schedules, costs or anything else. Small wonder that firms are training applications area analysts from among their

own ranks, giving them a problem, because they know best how to solve it, and promising them computing resources should the solution warrant them.

DP managers are themselves, in many cases, "mustangs" who have come up through the ranks. In this transition, they, too, have remained processing-oriented, not management-oriented. Small wonder that budgets are exceeded and results are not forthcoming.

What's the Answer?

What is the resolution? Well, I can see several, but, generally, they should include the following:

- Data processing managers should not be placed in that

The only training he gets is that which is necessary to keep him abreast of the hardware and software changes inherent in our organization. Business involvement is not part of that curriculum.

position without a thorough infusion of management principles and experience, a massive infusion of the company's business, perhaps through functioning in a pure business-non EDP function.

- Project managers should be not merely analysts with "nothing to do this week." They should receive much of the same kind of training a DP manager receives.

- Systems analysts should be not merely ex-programmers, thrust into the world of the company's business without a thorough grounding in business principles and the aforementioned infusion of company business orientation. They should be separately hired people, with unique skills, with demonstrated abilities, and with verified insights.

Kenniston W. Lord Jr., CDP, is president of the Society of Certified Data Processors.

Consumer Resistance Urged to Fight Junk Mail

By Ken Seidel

Special to Computerworld

Besides all the wondrous feats of the computer age, such as helping run the lunar-landing module, there are unfortunately many abuses of data processing, of which perhaps the most conspicuous recent example is the Equity Funding scandal, where crooked executives made DP an accomplice to insurance fraud.

Between these extremes lies an everyday use of the computer that probably affects most of us. It is a very simple thing — mailing lists maintained on computer tape or disk memory by every issuer of credit cards: American Express, major oil companies, department stores, etc.

This means a tremendous increase in the volume of mail that each of us receives. In addition to receiving a monthly statement from Mobil Oil, for example, you receive another mailing from the Mobil Merchandise Center, urging you to purchase a 60-piece set of Meakin English ironstone on the installment plan (eight months at \$5.62).

And the postman brings such an offer

A Suggestion to Junk the Junk

To _____
(company name)

Gentlemen: Your computer knows me as account number _____ in connection with my purchase of your merchandise and services. However, it has also come to my attention that my name, address and other private personal data and records are being made available to other departments or related companies, for the purpose of soliciting business by mail. I request that this practice be stopped. I specifically deny to your firm the right to use my name, address and other data for any purpose other than the lawful collection of charges made to my account. Be advised that I am the sole owner of rights and privileges associated with my name and address.

Signed _____

("just check the box on the handy order form") from nearly every company with which you have accounts.

'Disposable Income'

Besides paying for the purchases you charged, you are pressured subtly to go along with through-the-mail schemes to sell you life insurance, health insurance, specially struck commemorative coins from the Franklin Mint, adding machines,

backyard barbecues — all kinds of unnecessary but tempting ways to take what economists call "disposable income" from you.

And it is the availability of high-speed computer technology that makes this barrage of consumer inducement possible, by lowering the unit cost of addressing your envelope.

My point is this: to many people, mailings of this type are considered a

waste — it is truly "junk mail." Unfortunately, junk mail costs us, in wasted paper, in wasted mail delivery services and in wasted time to dispose of the waste.

In face of today's waste disposal and resource consumption crises, it seems reasonable to at least make available to everyone on a mailing list the option to remove his name and address from the list, when it is put to such unwanted exploitation.

Perhaps there should be national legislation requiring that every company engaging in the use of mailing lists give its customers the option of canceling the company's assumed right to make constant solicitations by mail.

I suggest that the simple effort of mailing a copy of this article to your representative in Congress might be useful. Meanwhile, you might want to fill out the form alongside and send it to the originator of computerized junk mail, as your contribution to the age of ecological responsibility.

Ken Seidel is an independent DP consultant in Fallbrook, Calif.

History of Failure, Carelessness

Should Blue Cross/Blue Shield Run Own Systems?

Blue Cross/Blue Shield (BC/BS) of Massachusetts has now admitted it gave me wrong information about payments received, and admitted it had the \$124.20 that was "lost" last July all the time [CW, Oct. 17]. Its most recent statement is that I was paid up until Nov. 1, and now have continuous coverage. Blue Cross explained it repeatedly insisted I was not covered because its staff failed to check the computer records, which indicated the payment, and also failed to update a manual system last July.

The actual BC/BS omissions, of course, include a management failure which permits the use of one erroneous type of available information without requiring that it be checked — at least upon request — against other available records.

The BC/BS technical failure lies in the design and use of a system which does not provide what its staff technical man calls "a subscriber audit trail," i.e., a record of a subscriber's payments.

This system design failure — which is being carried over into a new system — apparently is the real reason I was not permitted to check my payment records. The given reason was "due to the volume of such requests." Surely a volume of requests indicates an urgent need for the creation of a checking method, rather than a cutoff of available methods.

The disturbing points of this tale are:

- The high incidence of such system errors in the BC/BS operation.
- The lack of proper system error control.
- The BC/BS readiness to respond to a volume of complaints by reducing the services available to check on system accuracy, rather than removing the errors!

Nor is it only the matter of subscriber history in which Blue Cross shows inaccuracies. So far this year, I have received from Blue Cross five Blue Shield computer-processed notices regarding benefits, all of which accrued during the one-day treatment last December.

Three of these were incorrect actions, and involved me in the unnecessary payment of \$160. The other two were incorrect in their information and may have helped cause possible improper charges of

\$41. Let us look at these points.

The three incorrect actions appeared in January. They were rejections of doctor claims on the grounds that I was not covered by BC/BS. It now turns out that this rejection was programmed based upon a system that ignores both payment and billing data!

What About Grey Area?

It relies, instead, on a fallible "status" report that can only differentiate between "Known Good" and "Not Known Good." The idea of grey area situations has not been allowed for by BC/BS system designers.

If this information had been used, it would have been evident that even with the inadequate and belated updating operations of BC/BS there was no reason to reject the claims, as opposed to placing them in the existing suspense file.

The two information failures, also coming from the BC/BS computerized systems, were on October acceptance notices on two of the previously rejected claims. These include a date paid, which is given as Oct. 30. This seems reasonable as these were mailed that day.

In fact, BC/BS now says that this notice was printed simultaneously with the actual payment date — which was 13 days earlier!


Have Errors Cost Me \$41?

Because the rates that many doctors charge to non-BC/BS patients can differ from the rates for the same services charged to BC/BS patients, I, and many others, may have lost money, even though the checks sent out by BC/BS have been endorsed to me.

For instance, I have paid on demand to one group of doctors \$120, and received checks for \$80. I understand I will get another one for \$15; I have paid \$40 to the anesthetist, and have now been reimbursed for \$24.

The thus far unexplained difference of \$41 may be justified — but the suspicion remains that BC/BS's use of incorrect payment dates creates, and its delay in posting out these notices causes, the type of confusion which brings on these questions.

Nor is it only Massachusetts BC/BS that has a record of ignoring error control. In another recent case concerning Blue Shield of West New York, Inc., federal auditors found that although the organization received positive indications of a large number of errors occurring, it did little about it.



BLUE SHIELD


133 FEDERAL STREET, BOSTON, MASSACHUSETTS 02106

PATIENT H TAYLOR CERT # 4894941 SERVICE DATE 12-12-72 CLAIM # 0180705	TAYLOR ALAN E 633 CENTRAL ST FRAMINGHAM MASS	ANESTHESIA A \$24.00 10-30-73 04 PLAN SEE REVERSE 6
--	---	--

YOUR BLUE SHIELD CLAIM HAS BEEN APPROVED FOR THE AMOUNT SHOWN ABOVE. WE ARE GLAD WE COULD BE OF SERVICE.

The acceptance notice issued by Blue Shield, and posted on Oct. 30 saying that Anesthesia Associates was paid that day is contradicted by the actual date on the check, which was in fact issued 13 days earlier (below). The incorrect information may be simple carelessness, as can be seen to pervade the system. (For instance, one address is lacking its Zip Code — and the other has the place name misspelled, Framingham Central for Framingham Centre). But it can also be used to

cover up the fact that BC/BS computer errors can produce profitable results either for BC/BS itself, or for the health industry in general. In this case, Anesthesia Associates has been paid \$40 although it made no billing before the incorrect rejection of its claim by BC/BS computers, six weeks after the services were rendered. Should Blue Cross/Blue Shield have returned the \$40, instead of simply sending on the \$24 check without explanation?



MASSACHUSETTS MEDICAL SERVICE
BOSTON, MASSACHUSETTS

5-13
110

TO THE ORDER OF
ANESTHESIA ASSOC. OF FRAMINGHAM INC.
PO BOX 2436
FRAMINGHAM CENTRAL MA 01701

CHECK NO **527099** P A Y \$24.00
 10/17/73
 PHYSICIANS' PAYMENT ACCOUNT

NEW ENGLAND MERCHANTS NATIONAL BANK OF BOSTON
 BOSTON, MASSACHUSETTS
 ⑈942358⑈ ⑆0110⑈0013⑈ 0000⑈0083⑈

The potential seriousness of the problem lies in the connections between BC/BS and the hospitals and medical profession. The fact is that computer errors, such as those I have experienced this year, increase rather than decrease the income of these BC/BS-related groups.

Moreover, in some cases, such as the acceptance of Medicare claims that should be rejected, they can increase the income of these groups at the expense of taxpayers — thus a whole new dimension is added to the problem.

Currently, the technical state of computer science is so low that we cannot offer error-free systems any more than we

can offer secure ones. This provides a ready scapegoat — the computer — for all users of computer systems where the operator can profit from errors!

I question whether we should permit any agency, such as BC/BS, which can benefit its own people by allowing errors to continue in basically uncontrolled operation after a history of failure and carelessness, to design or run systems without much stronger, technically competent controls.

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Success Depends on Your Judgment, Don't Make Decisions Others Should

Your judgment determines your long-term success. Consequently, the way you arrive at your decisions has more impact on your career than almost any other factor.

As a manager, you spend much of your day solving problems. The higher you advance, the tougher your problems. You can work frantically on these problems, making enough mistakes to jeopardize your career, or you can tackle them calmly, producing balanced decisions that assure your future. It depends on your decision-making process.

The process starts with your attitude. You have to want an objective, factual approach rather than a subjective procedure involving personalities. Therefore, aggressively seek the facts, asking all who can contribute to help. Then, analyze where

Management

By Frank
Greenwood, PhD



the facts point. Finally, act on your analysis by deciding what to do. Your decision will have an intuitive component, but, by basing it on facts and analysis, you will: improve your decision; keep yourself flexible in a changing environment; and build a team that participated in the decision and thus supports it.

Timing is important, so don't decide prematurely. When you opt for one move, you close off your alternative moves, denying yourself flexibility. In hiring a systems programmer, for example, it may be wise to be certain your offer is accepted by your top prospect before you reject the runner-up.

Don't make decisions you cannot make effective, since you thereby undercut your authority and credibility. While your subordinates will tend to meet your standards, supporting the view that you want to keep the requirements high, the standards have to be achievable.

For instance, it makes no sense to decide that the new version of the software has to be put on over one weekend if it always takes at least two weeks to find and correct all the bugs.

Whose Decision?

Don't make decisions that others should make. Insist that your people present recommendations to you and do not allow them to reverse the roles. That is, you should not permit your subordinates to maneuver you into doing their work. While you are on such a "father-knows-best" ego trip, your own job is not getting done.

Your management problems usually involve people and their opinions. You need a consistent procedure for solving such problems and for causing these people relationships to work for you. The solutions are not easy, so you need a logical, repeatable approach that makes you take the time to understand your problem. Your survival is then much more likely because you are forced to consider all the facts before you act, thereby improving your decisions.

Philip Crosby, ITT corporate vice-president, has developed such a repeatable approach to decision-making about situations involving people and their opinions (see pages 52, 53 of *The Art of Getting Your Own Sweet Way*, McGraw-Hill, 1972). He suggests dividing your procedures into three parts, asking yourself the following questions:

(Continued on Page 13)

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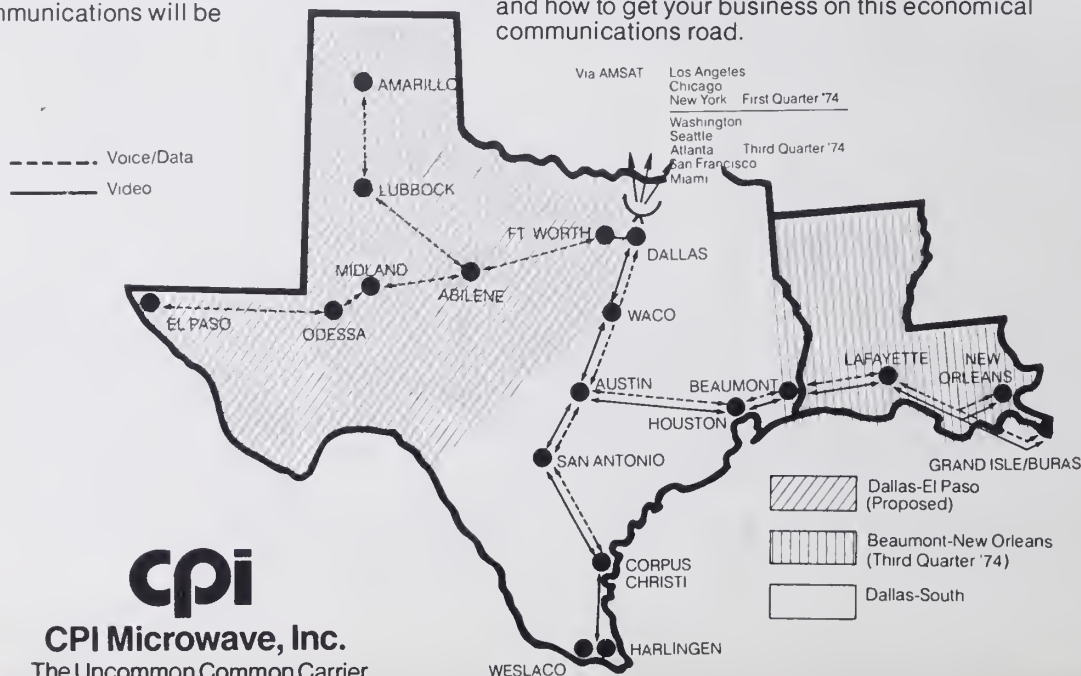
CPI's north-south microwave net is Texas' newest business superhighway to the nation. From Harlingen to Dallas — via Corpus Christi, San Antonio, Austin and Waco; plus a Houston-Beaumont link — this "Uncommon Common Carrier" provides a wide range of video, voice and data links.

Early in 1974, the Dallas terminal will link Texas with Los Angeles, Chicago and New York via American Satellite (AMSAT). And, later, San Francisco, Washington D.C., Seattle, Atlanta and Miami. Communications will be

completed in each of these areas with specialized carriers such as CPI.

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Don't Make Decisions Others Should Make

(Continued from Page 12)

• Awareness

1. What seems to be the situation?
2. How did I find out the situation existed?
3. What is the potential effect of this matter?
4. How serious is it? (If it is minor, determine whether it has possibilities of gaining importance and magnitude.)
5. How much time do I have to extricate myself?

• Evaluation

1. What evidence leads me to believe that the situation exists?
2. What is the specific source of the evidence?
3. Do I know the evidence is factual? If I don't know, how can I find out?
4. Could I list the steps that created the situation? Are

any missing or vague?

5. Whose mind must I change to resolve the problem?
6. What does that mind think now?
7. How will I know when the situation is resolved?

• Action

1. Join the key individuals and the key issues. (Try to get it down to one sentence.)
2. Why do they believe this?
3. What would it require to separate them from this belief? (Without creating another situation?)
4. What is the best method to use in this separation?
5. How do I implement the method?
6. Once it is over, what steps do I take to assure it will never happen again?

You might use this approach when you think all is well, but

your boss suddenly stops you in the hall, saying abruptly: "All I've been hearing about for two hours is marketing's DP problems. I wouldn't have the sales manager leaning on me if you were doing your job. I'd like to know how you plan to fix this situation at tomorrow's staff meeting."

Since this is the first you have heard about the marketing situation, you probably need all the help you can get to decide what to do by tomorrow morning. Crosby's approach is recommended.

Frank Greenwood is computer center director at the University of Montana.

Who's Got the Biggest Computer?

MELBOURNE, Australia — Who has the largest computer "Down Under"? CDC does, according to the Data Center of Control Data here.

The Cyber 74 has a central memory of 131K words (60-bit words) and an access time of 100 nsec. There are 14 peripheral and control processors, each with 4K 12-bit words of

independent core memory, and 18 I/O channels addressable by all peripheral processors.

Multiple disk drives with a 286M-char. capacity provide the on-line storage facility.

The system is used by the data center, mainly as a service bureau machine with access through remote terminals at the end user's installations.

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We hear you.



First Non-IBM Installation

After 6 Months, User Still Happy With 158 and VS2

By Don Leavitt
Of the CW Staff

SANTA MONICA, Calif. — Six months after bringing up the first 370/158-OS/VS2 production environment outside IBM, System Development Corp. is "extremely happy" with the combination, according to Nick Corritori, manager of the firm's corporate computer facility.

Conversion from a 155 running under OS/MVT Hasp took place late last May and was completed in 77 hours, from the time SDC "pulled the plug" on the 155

handling up to 600 jobs in the same time frame.

Main memory on both the old and the new system is 1.5M bytes, but the new environment has allowed the "whole spectrum of our offerings to be expanded to a full service operation," the manager added. "Now users can get at the system at their convenience, instead of at ours."

Specifically he noted that TSO support, which used to be available only three hours a day, is now accessible for 18 or 20 hours out of every 24. RJE was similarly limited, but has now opened up for as much as 22 hours a day.

Expanded Service

Much the same pattern of expanded service applies to data base inquiry and retrieval operations the firm runs for pharmaceutical houses and educational researchers. These functions had been allocated "about four hours a day" on the 155, but now have three times as much available.

A similar project for the Los Angeles Police Department is also more fully supported in the virtual environment, Corritori added.

The extended availability of these services and the concurrent desire for better support has led SDC to order another half megabyte of main storage, Corritori said, primarily to give better response time to on-line inquiries.

In addition to the 158 mainframe, the system now includes a mix of peripherals from both IBM and Telex. There are, for example, 24 spindles of IBM 3330 disk storage, eight IBM and Telex 2314s, a dozen 2401-type tape drives from both

vendors, and three printers. The system also has a card reader and "many, many terminals" linked in through an IBM

In any case, where the "real" 155 used to run 200 jobs a day, the VS2-based 158 is now handling up to 600 jobs in the same time frame.

3705 communications controller running in emulation mode.

Problems

SDC found, as have most users who have moved from "real" to virtual environments, that programs are generally compatible and that problems are no worse than moving from one version of an operating system to another. The majority of problems he found were not attributable to IBM, Corritori said.

"Some of our programmers are very

creative," he chuckled, "and over a period of time they had included some coding techniques designed to 'beat the system.' However, the new system has more checks built in and it has caught the programmers in some of the things they were doing."

There have also been some initial compatibility problems with other vendors who interface with the SDC computer facility, but these have generally been easily resolved "because we try to take things one step at a time," Corritori said.

SDC links with the Tymshare remote-computing network, he went on, and though the network had said — and apparently felt — that its system should be transparent to the user, in this instance it was not. The problem may have been poor documentation, the manager thought, but in any case, by modifying the emulation approach of the 3705 and the software in Tymshare's "box," it was resolved successfully.

User Casebook

to the time it considered itself back in production mode. "This was especially significant," Corritori noted, "since it was not only a new computer but a whole new concept in operating systems."

The upgrade was necessary, he said, because in the expanding service center/in-house operation SDC was running, several periods a day had to be blocked out or reserved on the 155 to handle specific jobs that had excessive memory requirements.

20% to 40% Faster

Corritori had no detailed benchmarks available to illustrate how the new hardware/software environment has handled specific jobs, but said tests he ran confirmed IBM's advertised claims that the 158 is from 20% to 40% faster, internally, than the 155. In any case, he noted, where the "real" 155 used to run 200 jobs a day, the VS2-based 158 is now

\$10 Package Eases Numeric Labeling Chores

NEW ORLEANS — IBM 360/370 users can start the new year right — tape reels and cabinets all neatly labeled — with a numeric labeling package from International Business Systems (Ibis).

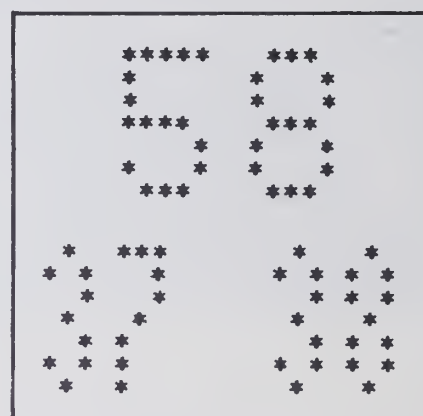
The \$10 package generates sequential, larger-than-normal "billboard-style" num-

bers, generally on pressure-sensitive paper labels, through a pair of matrices of standard-sized asterisks. One program prints two separate numbers on a label, using a 3x7 matrix; another produces a single number on each label, with a 5x7 matrix of asterisks.

As written, the programs start each printing run with the number "1" and continue — as far as "999" — until stopped by the operator. Samples indicate the current coding is geared to printing labels "four-up," but the company is quick to note that source language (Assembler) is provided so users can alter the logic to local needs.

Labels used thus far have been 1 in. by 2-7/8 in. but again, since source code is available, the programs can be reworked for other labels — or for stock paper or other media — should the need arise.

The programs were developed, Ibis explained, to ease the marking of tape cabinets, with the 3 x 7-sized numbers, or of the tape reels themselves, with the



Numbers produced with the 5x7 matrix (top) and with the 3x7 matrix (bottom).

larger numbers, but there is nothing within the programs that limits their output to those specific users. The programs take about 1K bytes of memory.

Ibis can be reached through P.O. Box 15780, 70175.

Batch Facility

The Conversational Monitor System (CMS), originally developed to provide interactive operations under VM/370, has been extended to include a batch facility. With this feature, a user can set up separate virtual machines to run long executions or compilations, freeing his terminal and original virtual machine for continuing interactive development activities.

Release 2 will also include support for local IBM 3270 display terminals which, the company said, will permit programmers to communicate with the system as they see their program take shape. Support for IBM's 3704 and 3705 communications controllers will be extended to include the facilities of Network Control Program to handle data lines more flexibly than the current VM release.

VM/370 is designed to run on 370 Models 135 through 168, equipped with a Dynamic Address Translation facility, System Timing feature and at least 240K bytes of real processor storage.

Time Series Studied

ANN ARBOR, Mich. — Corporate managers unskilled in DP can maintain production data, sales figures and other information used in business forecasting, with the Time Series Access Methods (Tsam) support available on the Cypher-netics Inc. remote-computing network.

Tsam maintains and updates tables of contents with the name, time and date specifications and descriptions of each series of time-related records in the user's data base. Analyses and reports can be produced in tabular or plotted format, a spokesman said.

The network can be reached through P.O. Box 2190, 48106.

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The day Computer-Date found love everlasting for Sue Anderson.

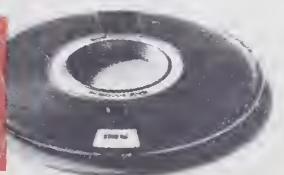
Blame it on a whimsical programmer, or a brown-out at Con Edison. The fact remains that computer errors, whatever their source, are incompatible with smooth performance.

What you need is a way to cut your possibility of error down to an absolute minimum. And the best time to start is when you place your next order for computer tape. Just specify BASF.

At BASF, we make the extra effort to provide you with tape as near perfect as possible. Case in point: our exclusive double-cut slitting technique eliminates edge waviness, an elusive cause of writing and reading errors. Keeping the edge straight helps you keep your data straight.

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paying for BASF quality . . . you might as well have it. Write today for the whole story of how BASF tapes stack up against the competition. Remember, nobody makes better tape than the people who invented it. BASF Systems, Crosby Drive, Bedford, Mass. 01730



When it's BASF...you know it's not the tape that goofed.

Cobol Clinic — Part I

Storage, Run Times of Cobol Jobs Can Be Controlled

By Kenneth Seidel

Special to Computerworld

(This is the first in a series of several tips on how (and why) better IBM ANS Cobol technique can produce more efficient programs. Where timing is cited, 370/165 is assumed.)

Too often we find that a yes-or-no "switch" is defined in working-storage as an external decimal item, e.g., 77 AT-EOF PICTURE 9 VALUE ZERO.

If the switch item AT-EOF is to contain zero until a specific event occurs, after which the

The Cobol Clinic is intended to serve as a clearinghouse of ideas to make user programs more efficient. Reactions to Seidel's proposals are welcome, as are descriptions of other areas readers have found to be critical to their own coding effectiveness. Reports of optimizing efforts would be of interest.

switch contains 1, there is a better way of accomplishing the intended function, assuming that

item AT-EOF is not employed in any calculations: 77 AT-EOF PICTURE X VALUE SPACE.

Now the switch item can be set to contain '*' when the appropriate event occurs. What is the point of it? Well, we don't really care about improving the efficiency of the coding that alters the switch value, when the one-time event occurs — because it only occurs once; but, the interrogation of the switch may be made two or three times per input record, and the program may handle millions of records

per month — therefore, let us evaluate the considerations of efficiency for external decimal versus alphanumeric switch testing:

(a) IF AT-EOF = 1 THEN ...
(b) IF AT-EOF = '*' THEN ...

Object code for (a) is performed in numeric fashion, first packing the value in a temporary work area, then using a packed decimal comparison:

(a) PACK TEMP (1), AT-EOF (1)
CP TEMP(1), UNITY(1) fol-

lowed by conditional branching

Object code for (b) can test the switch byte directly in one "immediate vs. storage (SI)" instruction:

(b) CLI AT-EOF, C' *'
followed by conditional branching

The code shown for (a) occupies three times as many bytes as that for (b), and is 12 times slower! Therefore, the best switch is a single byte having PIC X.

Sign Here!

When should you omit S (for sign) from a numeric item's picture?

Answer: only when you have a well-defined reason. In all other cases, this omission dooms the object code to extra fiddling, each time you store data into the item; the "fiddling" has to do with guaranteeing that negative data never appears in the unsigned item. That is, omission of S from the picture is, in effect, your request to the compiler that only absolute values appear in the item — and so, after every move, add, or compute, additional code appears, to "erase" the sign! That takes up additional space and execution time.

Binary Items

In ANS (Version 4) Cobol, binary items provide an extremely efficient type of data for any (a) counter or special "tally," (b) subscript, (c) switch, especially for multi-way branching.

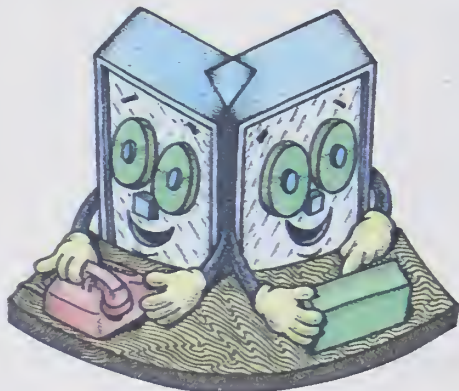
There is one *big* provision, however: *you must remember to synchronize every binary item to an appropriate word or halfword boundary.* This is only done by writing the abbreviated reserved word SYNC in the description, e.g., 02 COUNT-INPUT-RECS COMP SYNC PIC S9(9) VALUE ZERO.

If you leave out SYNC, in ANS, your object code for each and every access of the binary item (setting, testing, calculating) will be made *extremely* inefficient.

Remember to make all subscripts synchronized binary (SYNC COMP) items; failure to do so will produce tragically poor-running object programs — and they'll grow fatter in size, too!

Seidel is an independent DP consultant from Fallsbrook, Calif.

Now you can have key-to-disk and RJE going in one system. Concurrently.



System 2400 invites you to forget scheduling hassles.

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Consider, too, the other System 2400 options for your RJE site. On- or offline printing, editing, media conversion, your own programming. They're all available today or as you need them with a minimum of added hardware and a growing library of software.

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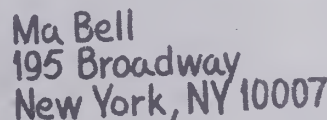
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As computer/communications nets become larger it will become necessary to pay more attention to their reliability, Pyke said.



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Bits & Pieces

Disk Drive for PDP-11 Stores up to 9.6M Words

ANAHEIM, Calif. — Consisting of either a single- or dual-platter disk cartridge, Datum, Inc.'s disk drive for the DEC PDP-11 provides formatted data storage capacities of up to 9.6M words. An interface controller, interconnection cables, I/O device and diagnostic software complete the Model 140901-PDP11 package.

Delivery is within 10 weeks for the basic 1.2M word system which costs \$9,000 from the firm at 1363 S. State College Blvd., 92806.

Electroplate In, Spraying Out As Means of Surfacing Disks

REDWOOD CITY, Calif. — A new protective overcoat for fixed-head magnetic disks has been developed by Ampex Corp.

Historically, disk surfaces are covered by an oxide spray, similar to the surface of magnetic tape, which is charged by magnetic fluxes (plus or minus) which the computer reads as ones and zeros.

The new Ampex technique now being used for OEM orders is to coat the aluminum disk surfaces through electroplating.

"Field-tested performance in head-per-track computer peripheral applications with the new overcoat has demonstrated the ability to survive under controlled test conditions more than a quarter of a million start/stop cycles with no deterioration of surface quality," a spokesman said.

Two criteria for measuring any recording covering are the smoothness of its grain (which affects the maximum possible packing density) and the oxide covering's toughness (which determines useful lifetime).

Because a smoother grain is present in the electroplated disks, physical packing density is five to six times greater than with the standard oxide sprayed disks, the spokesman added.

Ampex is located at 401 Broadway, 94063.

Checking Prices on Computers?

ENGLEWOOD CLIFFS, N.J. — The six-page *Computer Equipment Bulletin* from Computer Marketing Corp. gives an indication of current computer prices by describing this dealer's current inventory and asking prices of computer equipment. The firm is at 467 Sylvan Ave. 07632.

MTI's Memory Passes IBM Test

SUDBURY, Mass. — IBM has agreed to maintain its portion of 370/165 CPUs containing Memory Technology, Inc. 765 semiconductor memory.

Mini Offers Cobol, RPG, 2.5M Word/Sec I/O Rate

By Vic Farmer
Of the CW Staff

NORWOOD, Mass. — The RDS-500 16-bit word minicomputer from Raytheon Data Systems allows direct addressing of the full 64K-word memory.

Cobol, RPG and Fortran IV compilers are available as well as RJE and a multi-programming system for batch and real-time operation.

A typical 32K system, while priced at \$14,000, can be rented on one-, two- or three-year lease for \$560, \$510 and \$475/mo respectively.

The maximum I/O rate is up to 2.5M word/sec, according to the firm.

Dual-port memory access using "Superbus I and II" will allow multiplexing of 16 devices.

The CPU has eight general-purpose registers, printer controller, 16 vectored priority interrupts, automatic hardware bootstraps for four devices and up to 122 hardware instructions. Instruction cycle time is 500 nsec, according to the firm.

Optional features include high-speed hardware multiply/divide, power fail-safe, memory protect, memory parity and a full operator's panel. A single- and

double-precision floating-point processor is also available.

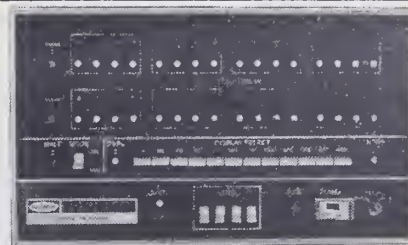
Core memory is expandable from the minimum 8K-word configuration to a 64K maximum using 8K at 800 nsec or 16K at 900 nsec cycle speed increments.

Data Bus Systems

The Superbus structures are 18-bit bi-directional data bus systems for the transfer of addresses and data between the primary memory ports and all users of the port including the CPU, option boards and all local I/O controllers.

Both Superbus I and II are incorporated in a vertically mounted PC board that serves as the back plane of the RDS-500. The RDS-500 is packaged in an 11-position cabinet. The arrangement provides room for the CPU board, CPU options, expansion of memory up to 65K and peripheral controller boards.

Because of the universal bussing structure of the back plane connectors, positioning of any of the computer boards is not critical and allows trade-offs between memory, processor option and peripheral equipment controllers, according to the firm.



RDS-500

Raytheon also announced two newly developed hardware options: a new floating-point array transform processor called Apollo and a universal process I/O system, the "Nest," for real-time processing and control applications.

The Apollo is a 32-bit floating-point array transform processor that can operate on either 16- or 32-bit data in either fixed- or floating-point modes.

No sine-cosine table is required for Fast Fourier Transform and command chaining and conditional branching are integral with the hardware.

The Nest is a universal front-end interface designed to let the user standard order digital I/O, A/D, D/A and timer cards required for his specific application.

The earlier 700 Series software is fully compatible with the software for RDS-500.

First deliveries of the RDS-500 minicomputer are expected late in 1973.

Raytheon Data is at 1415 Providence Tpke., 02062.

Worldwide Power Where Needed

Five Satellite Computer Systems Pull Double Duty

PALMYRA, N.Y. — Garlock, Inc. has five operating groups that produce more than 100,000 products at 28 plants worldwide, and market them in more than 80 countries.

A business operation of such size needs management control at all levels. The firm has implemented a centralized-decentralized computer network which includes a combination of five System/3s connected to a 370/135 at Garlock's main office.

The idea is to place computer assistance where it is needed to do the most effective job — both at the corporate level and at the divisions, subsidiaries and plants, explained John H. Cookson, director of corporate systems.

Garlock, in effect, is putting its computers where its key managers are, as large amounts of data must be digested.

The company, Cookson noted, has installed the five S/3s at division locations in Texas, North Carolina, Canada, England and New York. In a flexible hookup, the small processors can be linked via telephone lines to a 370/135 at the corporate office here.

The reason for the centralized-decentralized approach to computers is that Garlock is a centralized-decentralized company. Garlock, literally, has small, medium and large reporting entities — more than 40 of them — and they require computer support in varying amounts of

speed and power.

How the Net Began

When Garlock moved from its overworked 1401 computer to a 360, the company began installing communications terminals to link some of the decentralized units to its central processor. It was the beginning of the company's development of a network approach to computers.

"I always wished that we could have a terminal that could do double-duty as the local processor," Cookson recalled, "and the System/3 fulfills that requirement. The small computer serves us well as a 'teaching aid,' too, by helping us to instruct the local employees in the intricacies of data processing.

"In some areas of the business, there is still an evolution taking place from manual to computer-based systems. We are striving to take the 'pain' out of that."

Much of the program development for all of the satellite computers done on the "home office" S/3.

"We don't want to have to 'reinvent the wheel' every time we develop a new application at each location, so much of program development is handled and tested first at the corporate office," he noted. The same programs are installed with modifications at the other locations.

"England is a little different. For example, they handle their payrolls in cash

rather than by check. So, we don't attempt to persuade them to run the same programs."

Garlock selected a satellite computer system to help support major areas of the company. First, a small computer's capability to communicate over telephone line directly with the larger processor provides an important link in centralized control. Second, satellite computers serving as "stand-alone" computers can be used for processing local reports.

No Routine

Given the complex nature of Garlock's global business, even "routine" applications are not so routine. Take the general ledger, for example.

Fifty reporting locations report in each month. They all must be consolidated in U.S. and local currency, and "the world" has to be closed in 10 days, with a firm grasp on currency fluctuations.

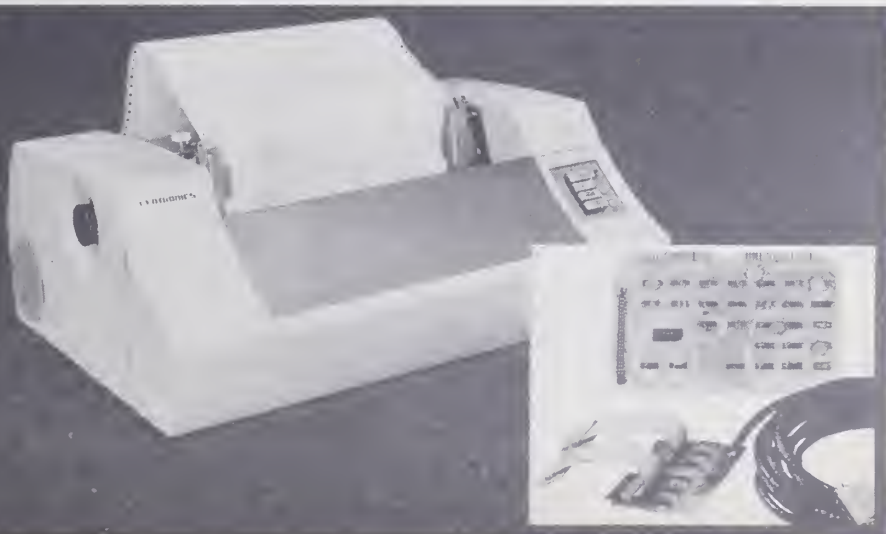
The processing work is guided in the 370 by some 50 different programs. The financial reporting system serves as subsequent input to Garlock's financial modeling system.

Linked to the computer's order entry file are the order status, invoicing, receivables and control files. Order status, in turn, is tied to the inventory, requirements planning and production control "blocks" or modules.

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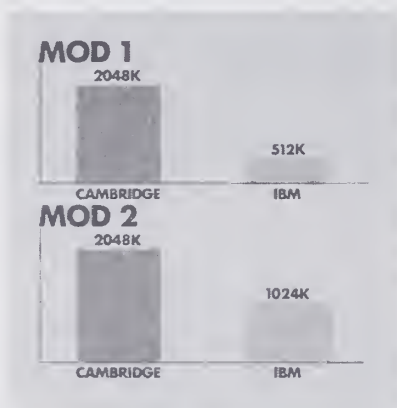
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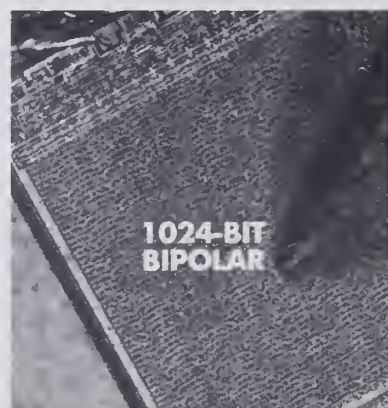
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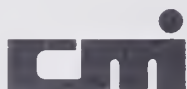
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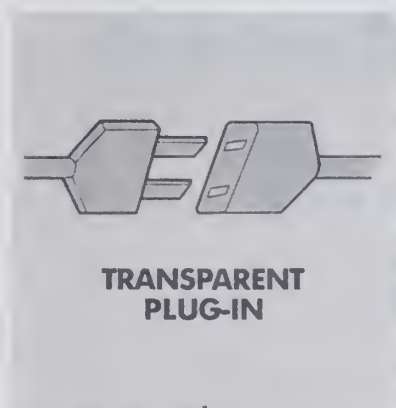
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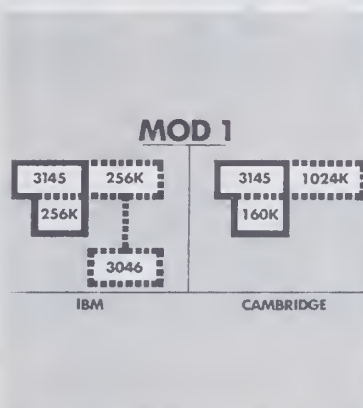
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PRIVACY AND DATA BANKS:

Tough Guides Pushed to Ensure 'Highest Protection'

By E. Drake Lundell Jr.
CW Washington Bureau

WASHINGTON, D.C. — Tough new standards and regulations on criminal data banks and the establishment of citizen's councils to carry out the guidelines were urged here recently in a Department of Justice-sponsored report.

Other related stories on the protection of personal privacy on Pages 24-26.

The report specifically contains provisions for purging outdated data and keeping data of arrests without convictions out of the system as well as permitting citizens to access their records and update or correct them.

Noting that criminal justice agencies now keep millions of items of information on individuals in computer-based systems, the National Advisory Commission on Criminal Justice Standards

and Goals said constraints must be imposed on the systems to ensure the

THE U.S. REPORT

"highest practicable level of protection is obtained."

Standards Favored

But while the group, which was funded by the Law Enforcement Assistance Administration, noted the great danger to privacy caused by such systems, it did not call for national legislation to protect privacy, but rather recommended "standards" that should be adopted by the states to ensure privacy.

The first of these standards in the privacy area recommended that "each state should adopt enabling legislation for protection of security and privacy in criminal justice information systems," including

minimum standards and civil and criminal penalties for violations.

In addition, the group said each state should establish a "Security and Privacy Council," with at least 50% of its membership from outside the criminal justice system.

"The Security and Privacy Council shall be vested with sufficient authority to adopt and administer security and privacy standards for criminal justice information systems," the group said.

The council should have the authority to establish regulations on the collection of, access to and dissemination of criminal justice information, the report said.

In addition, the standards would require all persons involved in the operation of such systems to "attend approved courses of instruction concerning the systems' proper use and control."

The second recommended standard stated: "An item of data may be collected and stored in a criminal justice information system only if the potential benefits from its use outweigh the potential injury to privacy and related protected interests."

"One useful procedural limitation on data collection," the commission noted, "might be public disclosure and justification" for all types of data collected. "Open disclosure and justification of each item of information and how it will be used will tend to force a weighing of utility against privacy considerations."

Access to the files kept in a criminal justice information system should be strictly limited to those public agencies with both a need to know and a right to know, the commission said, and each "user agency should demonstrate in advance that access to such information will serve a criminal justice purpose."

At the same time, the commission recommended only criminal justice agencies should have terminal access to the system and other government agencies with a need and right to know the information should be required to access it through the criminal justice agency.

Those non-criminal justice agencies seeking the information should apply to (Continued on Page 24)

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Ron Maupin
Training Consultant
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Vendor

3d-Party

3d-Party Lease Lacks Safeguards of Vendor Pact

By Thomas E. McCormick
Special to Computerworld

Although the costs of leasing some computer equipment from a leasing company compare very favorably with the costs of renting or leasing directly from the

In this series of articles on the risks involved in third-party leasing contracts, the author lists informative hints, pitfalls, suggestions and practices all users considering such leases should consider.

manufacturer, a third-party computer lease is more risky.

Computer manufacturers' standard contracts are usually quite strict, but very often not rigidly enforced. Third-party contracts often provide some desirable terms for customers, such as attractive monthly rates, no overtime charges and price protection beyond six months, but they do not provide some of the safeguards which computer users have come to take for granted because of manufacturers' generally lenient practices.

The manufacturers can guarantee delivery dates; they can accede to last-minute extensions of installation; and they can provide professional preinstallation planning assistance, even though these items may not be provided for in their contracts.

These considerations are attractive to users and account for generally higher prices charged by those manufacturers.

What About User?

Third-party standard lease contracts protect the leasing company quite well, but usually do not provide very much protection for the user, or assure a high level of service, unless the user specifically requires it in the contract. If a problem such as non-delivery arises, the user should not expect the leasing company to be able to react as quickly as a manufacturer.

The contract should spell out the commitments of each party, and the penalties for non-compliance. Such commitments should include those services and practices which manufacturers engage in even though not bound to do so by their contracts.

Because of the sizeable amounts involved in computer rental and the serious difficulties associated with any prolonged disruption of a computer's avail-

ability, it is important to negotiate detailed contracts when dealing with third parties.

Verbal promises may prove very difficult to enforce, and are frequently met by a standard contract clause stating that the written terms recite the entire agreement. The user should require vague or ambiguous terms to be rewritten clearly.

Lessees should beware of provisions which are "subject to" something. For example, some contracts promise prompt delivery "subject to" availability. This means that if the leasing company has the equipment, it will send it to you. Since you are

usually committed to the removal of equipment at the same time you install replacements, you may not get one or more vital parts of a system, if the current lessee requests an extension of installation of equipment which was scheduled to be moved from him to you.

Part II will discuss lengths of contracts, automatic extension of contract period and monthly lease periods.

(Thomas E. McCormick spent several years with IBM as a sales representative before becoming director of computer operations at the Seidman & Seidman National Computer Center.)

Step by Step Before You Sign

Here is a recommended sequence of steps for entering a third-party computer leasing contract:

1. List machines and features needed in detail.
2. Define contract terms as you would want them.
3. Review with a consultant or another EDP user. Develop firm equipment specifications, and specify desired length of lease for each item.
4. Request quotations after equipment specifications are firm. Have lessors include copies of their standard contracts for your review.
5. Check references of vendors. Verify that satisfactory maintenance is available in your location.
6. Negotiate with vendors until terms are resolved. Get everything in writing.
7. Obtain legal review before signing the contract.

You'll never be anxious about a Talcott Computer Leasing Contract. We believe in tailoring it to a customer's specific requirements. Clearly spelling out all the details. And then living up to it.

Good advice. Talcott Computer Leasing goes over a similar list with each customer before he signs.

Sure manufacturers say they guarantee delivery dates. But they also miss them. We don't. Talcott Computer Leasing hasn't missed a delivery date yet.

Talcott Computer Leasing has always been run by computer people—not financial people. That's why we provide these vital professional services.

Let me say it again. Talcott Computer Leasing has never missed a delivery date.

Privacy Threat Seen Inherent in Data Bank Existence

By Marguerite Zientara
Of the CW Staff

BOSTON - The threat to privacy is inherent in the existence of computerized data banks, three experts agreed at a recent conference at Boston University. Arthur R. Miller, professor of law at Harvard Law School and a member of the

Massachusetts Privacy and Security Commission, initiated the session on "The New Media and the Right of Privacy" with a statement of the basic need to balance society's "need to know" personal information against the citizen's right to privacy.

Miller cited various large data banks

now in operation which are harboring vast amounts of information about U.S.

THE BU CONFERENCE

citizens: the Civil Service Commission with an investigative employee file on 5.6 million Americans; one credit bureau company with information on 40 million people; the Social Security Administration with data on 100 million Americans; the Department of Transportation with a driver registration service embracing 2.6 million people; the Civil Disturbance Group of the Justice Department which maintains dossiers on people considered "threats to national security;" the Secret Service presidential protection agency with a "sophisticated computerized system" of records on malcontents and activists; and finally the controversial National Crime Information Center with dossier-style arrest records on-line to FBI offices and State Police agencies.

These and other data banks, according to Miller, all have socially desirable mo-

tives: law and order, national security and enlightened judgments in the case of credit bureaus. "The question is whether these motives justify the risks involved in establishing these systems," he said. He called for obtaining the maximum utility out of the systems while maintaining the minimal deleterious effects.

The session was part of a conference on "The New Media and Public Communication: Can We Survive the Electronic Revolution?", which aimed to bring together "renowned telecommunications experts and concerned citizens from business, the press and the universities."

How Does IBM Do It?

Robert Courtney, manager of the data security department at the IBM Computer Laboratories in White Plains, N.Y., speaking on what has been done to contain the problem, described an accounting system at IBM.

Courtney said the system had 1,400 remote terminals in 250 offices within 48

Report Urges Highest Protection

(Continued from Page 22)

the Security and Privacy Council for permission to access the information and receive certification from that body.

While criminal justice agencies should have full access to the data, the commission recommended that other agencies should have their access limited to just the information needed for a specific purpose.

In the case of arrests where there is no conviction the commission recommended that "all copies of information filed as a result of an arrest that is legally terminated in favor of the arrested individual should be returned to that individual within 60 days of final disposition... information includes fingerprints and photographs."

In addition, it said that such information "should not be disseminated outside criminal justice agencies."

However, such information could be retained if the individual was being tried for another crime or had been convicted of a crime in the past, the commission added.

Any information in a criminal justice system should only be disseminated to governmental agencies, the report continued.

In addition, the group recommended that each state enact legislation "which limits questions about arrests on applications for employment, licenses and other civil rights and privileges to those arrests where records have not been returned to the arrested individual or purged. Nor shall employers be entitled to know about offenses that have been expunged by virtue of lapse of time."

In the area of purging information, the commission said that "every copy of criminal justice information concerning individuals convicted of a serious crime should be purged from active files 10 years after the date of release from supervision. In the case of less serious offenses the period should be five years."

However, the information could be kept if the individual had ever been convicted of another crime.

In order to ensure the completeness and accuracy of information in the files the commission suggested several steps in addition to the purging of files as they become out of date.

Complete and Accurate

First, it said, "Every item of information should be checked for accuracy and completeness before entry into the system. In no event should inaccurate, incomplete, unclear or ambiguous data be entered into a criminal justice information system. Data is incomplete, unclear or ambiguous when it might mislead a reasonable person about the true nature of the information."

Secondly, the group recommended that "a system of verification and audit should be instituted. Files must be designated to exclude ambiguous or incomplete data elements. Steps must be taken during the data acquisition process to verify all entries. Systematic audits must be conducted to insure that files have been regularly and accurately updated."

Except in the area of intelligence information maintained by the police the commission said "every person should have the right to review criminal justice information relating to him" and all criminal justice agencies have the duty to "make available convenient facilities and personnel necessary to permit such reviews."

The reviewing individual, after establishing his identity through fingerprints, would be allowed to take notes about the record, but would not be able to take an exact copy of it with him, according to the guidelines.

The reviewing individual would also have the right to challenge the file and could "submit written exception as to the information's contents or accuracy" to the agency.

A copy of these exceptions would be

(Continued on Page 25)



'Comes With the Territory' Privacy Threat 'Inherent'

(Continued from Page 24)

states and Canada. Seven thousand people use the system which contains information extremely sensitive to IBM, he said. The information includes the complete installed inventory, corporate cash flow, order entry information, marketing and payroll data.

Of the 7,000 people with access to this data, each one can access only a specific category relevant to his work. "Strong individual accountability is the situation here. We can tell what was accessed, who accessed it and when it was accessed, a capability which doesn't exist in manual systems," he said.

About the Future

Robert Fano, associate chairman of the MIT department of electrical engineering, addressed his remarks to the future. He suggested that while data files are now

being used to help organizations, in the future there will be increased usage to aid the individual in his personal affairs.

Fano was concerned with maintaining a high level of confidentiality in regard to information stored in a computer system since, he said, in order to get help from the computer, one must provide it with information.

In order to tackle the complex problem of protection, however, a computer system must be able to control access to itself and control what people do with the information obtained. "Not one system exists today which can deal with this problem," Fano said.

Furthermore, he asked, "Who controls the controls?" Fano questioned who has the right to change the names in a list of "authorized" personnel, for instance.

Fano warned against the constant, unending collection of information because, he said, "the more information there is,

What Are the Real Threats?

Arthur R. Miller of Harvard Law School cited three real threats to the individual's right to privacy posed by the establishment of data banks:

1. Dependence on records in decision-making processes. Inaccurate, third-person information is often accepted as fact.

2. Secondary use of data. The subject supplying the information is unaware of additional uses to which it will be put.

3. Information collected by government agencies may be seen as a threat to basic civil liberties. After the "inner city disturbances" of the late sixties, domestic military intelligence was re-enacted and in 1971 Sen. Sam Ervin (D-N.C.) held hearings in which it was discovered that the U.S. Army had collected information on seven million people. These people included anyone who had spoken out on the situation in

Southeast Asia, equal rights and other controversies.

Miller feels that if in exercising one's rights of dissent, speech and petition one's name is put into a data file, then a citizen may keep silent as an alternative, thereby losing his rights.

In a panel discussion following the individual talks at the Boston University conference, Miller pointed out that "although the system is porous as hell, the one person who can't get into it is the subject himself." He further pointed out the high costs of notifying subjects of their right to examine files, of sending copies of files and of sending out notices of every change.

Miller also noted that minorities and welfare recipients have the least privacy and yet have the least means to act on their rights. "If our social benefactors are invading our privacy rights, it's hard to fight that," he said.

the harder it is to find what you want." We must consider what we will do with the information and determine exactly what really is necessary.

DPers Called Absurd In Privacy Concern

OTTAWA, Ont. — "I find computer scientists absurd when they purport to be concerned about privacy."

Taking this controversial view was E. Richmond Olson, director of the legal research and planning division of Canada's Department of Justice, and one of the major figures in the 1972 task force which reported on "Privacy and Computers" in Canada.

"I cannot suspend my disbelief when the institutional users of computers, those who have created the privacy problem and depend on the knowledge of private lives for their very existence, announce that they are striving to preserve the right of the individual to be left alone," Olson maintained in a speech earlier this year to the Data Processing Institute.

Olson suggested that what is being done in the realm of privacy and computers is "not only absurd but dangerous." Citing the several conferences devoted to the subject, Olson noted that the conclusions are always the same: academics, industrialists, bureaucrats and publicists all insist they need to know about people in order to do their work properly, that their aim is to make people happy, and to do this efficiently they need computerized data banks.

Refuting these points, Olson quoted Edmund Burke: "Necessity has been the excuse for every infringement of human freedom. It is the argument of tyrants; it is the creed of slaves."

Olson believes that, instead of preserving privacy in our debates, we are "seeking means to reinforce our right to infringe on it. By saying that the machine must be harnessed, we imply that it is a necessary thing."

To solve the complex problem, according to Olson, we must "keep the debate going, keep talking and keep worrying" in order to "pursue something rather than protect something."

Justice Report Urges Highest Protection

(Continued from Page 24)

forwarded to the Security and Privacy Council and the agency in charge of the record would be required to conduct an audit of the file to determine the accuracy of the exceptions made by the individual.

Both the council and the individual would have to be informed of the results of the audit, and the agency would be required to update the record in line with its findings and to notify any other agencies to which the record had been sent of the changes made.

In addition to these rules, the commission also recommended that a three-part classification scheme be established for data in such systems.

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Europe Concerned About Errors, Right to Correct Them

• Problem Intensifies

By Joseph Hanlon

Special to Computerworld

LONDON — Computerization has meant larger data banks, and with them a significant new error problem. At the same time it is becoming very difficult for the individual to correct erroneous data about himself.

These conclusions are found in a survey

THE BCS SURVEY

of 44 operators of large computer data banks in Britain, conducted by the British Computer Society.

Fifty-six questionnaires were sent out, and the answers were surprisingly candid. Most of the data banks are large — nine respondents had files on more than one million individuals, and 13 had files on between 300,000 and one million individuals.

The error problem was clear. More than one-third of the respondents admitted to "significant problems in maintaining accuracy of computerized records which were not present in the manual systems." And 42% said that during conversion of records to computerized form factual errors were detected in items which had been "important in making decisions about the individuals on whom the records were kept."

But the individual who wanted to check his file for accuracy would have trouble. The survey found that in 21% of the data banks, the individual did not even know the record existed; in another 33% he knew about the record but couldn't see it; and in 9% he knew about the record but could only see part of it. Thus, in only 37% of the data banks the individual had a real opportunity to check his file.

The respondents included seven trade unions all of which admitted to accuracy

problems; however, all but one gave individuals full access to their files.

Westin's Questionnaire

In some ways, the BCS questionnaire was similar to one used by Professor Alan Westin in a survey last year, and the BCS compared some of its results with Westin's results for U.S. banks and life insurance companies.

The BCS found 42% of the respondents were collecting more data on each individual than before computerization, compared with Westin's 43%. But Westin found only 44% of this group was doing so because of computerization, while the BCS found all had increased because of computers — primarily because of increased storage and processing capacity.

In comparing security procedures, the British were more likely to control physical access (BCS, 77%, Westin, 59%) and to have hardware or software security measures (BCS, 47%, Westin, 29%). But the British do not like personal integrity checks on employees (BCS, 16%, Westin, 54%).

Although increased computerization has meant more data collections and more errors, it does not seem to have affected correlation or swapping of information. Only 5% of the respondents said they gave individually identifiable information (other than pay data) to outside organizations. "Very few organizations seem at the moment to be correlating information," the BCS said.

The BCS also looked at the possibility of legal controls for data banks. A surprisingly high 80% supported required registration of data banks, but support for other controls was weaker, with a strong minority opposing any other control.

The survey, entitled "Questionnaire on Privacy and the Computer," is available for \$4 from the British Computer Society, 29 Portland Place, London W1.

• Accuracy First Rule

By E. Drake Lundell Jr.

Of the CW Staff

STRASBOURG, France — The Council of Europe has adopted general guidelines for the protection of personal privacy in computerized data banks in order to develop stronger privacy law among its members of the European Common Market.

THE COMMON MARKET

The resolution "On the Protection of Privacy of Individuals vis-a-vis Electronic Data Banks in the Private Sector" was adopted by the Committee of Ministers for the council at its 224th session recently.

'Necessary Steps'

The recommendations, designed to create a fairly uniform body of law among the member states of the European Common Market in the area of privacy, call on the member states to "take all steps which they consider necessary" to implement the recommendations and to report back to the council on the steps taken.

The first general principle enunciated requires that "the information stored should be accurate and should be kept up-to-date. In general, information relating to the intimate private life of persons or information which might lead to unfair discrimination should not be recorded or, if recorded, should not be disseminated," the council said.

The countries should pass legislation stating "the information should be appropriate and relevant with regard to the purpose for which it has been stored," and the "information should not be obtained by fraudulent or unfair means," the council said.

"Rules should be laid down to specify the periods beyond which certain categories of information should no longer be kept or used."

"Without appropriate authorization, information should not be used for purposes other than those for which it has been stored, nor communicated to third parties," the council said.

"As a general rule, the person concerned should have the right to know the information stored about him, the purpose for which it has been recorded and the particulars of each release of this information."

The council recommended that "precautions should be taken against any abuse or misuse of information. Electronic data banks should be equipped with security systems which bar access to the data held by them to persons not entitled to obtain such information, and which provide for the detection of misdirections of information, whether intentional or not."

The next major principle requires that "access to the information stored should be confined to persons who have a valid reason to know it. The operating staff of electronic data banks should be bound by rules of conduct aimed at preventing the misuse of data and, in particular, by rules of professional secrecy."

Finally, the council said "statistical data should be released only in aggregate form and in such a way that it is impossible to link the information to a particular person."

The resolutions were made because the council felt "so far, very few member states of the Council of Europe have enacted legislation on data privacy" while at the same time there "is a growing concern among the public about the possibility of improper use being made of sensitive personal information stored electronically."

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CI Notes

French Firms Form Club

PARIS — The Club de la Peri-Informatique has been formed under the auspices of the French Government to minimize the costs of development and production of products and to improve the competitive position of the French industry.

The group's 20 members include suppliers of terminals, peripherals and small computers.

The club hopes to establish a catalog of French peripheral equipment and organize the common marketing of this equipment overseas.

Future plans call for efforts to blend product ranges so that individual items complement rather than compete, but not to eliminate competition entirely.

Burroughs to Buy Distributor Stock

DETROIT — Burroughs Corp. has agreed to purchase a 50% stock interest in Takachiho Burroughs, Co., its Japanese distributor, which in 1972 sold \$90 million of Burroughs equipment.

Subject to the Japanese Government's approval, Burroughs will buy the equity from the distributor's sole owner, Takachiho Koheki Co., Ltd.

Datacraft, Harris Talk Merger

CLEVELAND — Harris-Intertype Corp. and Datacraft Corp. are discussing a merger.

Harris currently owns a 26% interest in Datacraft.

It is hoped that the merger will solve the shortage of working capital which has hampered Datacraft in the past, according to officials of both companies.

Supershorts

ECRM, Inc. has signed Photra Ltd., Johannesburg, S.A., to distribute its 5000 Series OCR data entry systems in the Republic of South Africa, South West Africa, Angola and Mozambique.

Brandon Applied Systems, Inc. and Groupe Sligos have signed a licensing agreement under which Sligos will market Brandon's program and systems conversion services in France. DeSisco Nederland B.V. was named distributor in the Benelux nations.

Infonational, Inc. has signed Inforex, Inc. as its 100th software customer.

PHI Computer Services has been renamed Wang Computer Services, a division of Wang Laboratories, Inc.

MSI Data Corp. has shipped its 20,000th portable electronic field data entry terminal. The unit went to the Economost Division of McKesson-Robbins Drug Co.

Tightened CPU Controls Cited

U.S. Pushing More Peripherals Purchases

By Toni Wiseman
Of the CW Staff

NEW YORK — The present atmosphere within the Federal Government is one of significant stress on peripherals, according to a market study conducted by Frost & Sullivan, Inc.

There is a growing tendency by government to acquire more and more peripherals from independent suppliers via the General Services Administration — a development spurred by the General Accounting Office, the survey indicated.

The Frost & Sullivan analysis of the market also noted that 1972 should be the low point in DP sales, with an increase during the Seventies, and peripherals representing 70% of the value of DP equipment.

The significant majority of sales, the report said, will be replacement of existing peripherals or additions to existing systems.

The study based its sales projections on several factors including the recent tightening of government controls on acquisitions of new computer systems.

This move is said to force agencies to extend the life of their current systems with add-on memories and storage pe-

ripherals.

In addition, the report anticipated a new generation of computer systems and peripherals by 1976 which should spur a new round of sales through the end of the Seventies.

The government peripheral market, which reached a high point of \$370 million in 1970, decreased by 30% in 1972, to \$280.4 million.

This trend is expected to reverse itself with the result of \$304 million sales in 1973 and \$490 million in 1979. These figures include all peripherals — input, output, storage peripherals and interface/control units.

In 1972, the report indicates that of an estimated \$5 billion for peripherals, \$4.56 billion or 91% were built by main-frame makers and \$.44 billion by independent peripheral manufacturers.

"While the storage peripherals have had the greatest publicity," the report said, "the computer data input and output segments offer completely new markets and have so far had the greatest impact of independent manufacturers."

As market sales in input and output areas increase, the study predicted, the participation of computer manufacturers

will also increase, pushing out the independents by acquisition or bankruptcy.

Input peripherals, which represent approximately 15% of total peripheral sales, according to Frost & Sullivan, will remain between 16% to 20% of total government peripheral sales, with keyboard-to-disk, optical readers and keyboard terminals leading the growth.

Total input sales to the government in 1971 were \$42.9 million, \$38.9 million in 1972, \$40 million in 1973, and are expected to reach \$80 million by 1979.

Output Least Active

Output peripherals, the least active segment of the market, according to the study, will be dominated by the line printer through the Seventies with COM taking over in the Eighties.

Output sales accounted for \$25.1 million in 1971, \$15.1 million in 1972 and are expected to reach \$54 million by 1979.

Storage peripherals currently account for the largest portion of the government peripheral market — approximately 60% of total sales value, according to the report.

After a slight decline, this percentage will climb to 50% during the Seventies, increasing from \$155 million in 1972 to \$260 million in 1979, the report estimated. Storage sales in 1971 were \$217.8 million.

Although storage peripheral sales are at present evenly distributed among magnetic tape, disk and core, the report predicted an eventual dominance by add-on memories attributable to decreasing main memory costs and a trend toward long-life systems.

The study found the total value of government DP equipment was \$3.85 billion at the end of 1972, with computers accounting for \$1.13 billion or some 30% and peripherals \$2.72 billion or 70%.

Inventor Suit Claims IBM, AT&T Acted to Bar Marketing of TTY

By a CW Staff Writer

WASHINGTON, D.C. — A former IBMer has filed suit in Washington Federal Court charging IBM and AT&T with restraint of trade in violation of the Sherman Antitrust Act.

Vernon M. Bugg, an 80-year-old inventor and former engineer with IBM, alleged that from 1932 onward IBM and AT&T acted together to prevent further development and manufacture of a teletypewriter he had invented previous to his employment by IBM.

Under the provisions of the antitrust laws, Bugg is asking for treble the value of his invention, which he places at \$40 million.

IBM said the case "has no merit," while AT&T declined to comment.

Thomas J. Watson, then president of IBM, presented Bugg's teletypewriter to the board of directors for possible manufacture, but it was turned down in 1932, the suit claimed.

In 1934, the suit maintained, Bugg informed Watson that since IBM had not acted in two years, he would take his invention elsewhere. Watson reportedly informed the inventor he thought there was a way to market the machine.

Within a few days Bugg set up and demonstrated his teletypewriter to the Erie Railroad; AT&T demonstrated the teletypewriter at the same time. The Erie

Railroad subsequently expressed an interest in purchasing some 200 of Bugg's machines, according to the suit.

Bugg alleges he then received a telegram from Watson on the same day reading, "Discontinue all sales efforts with the Erie people. All hell has broken loose. Return to New York at once and see me early tomorrow morning."

At their meeting, the suit went on, Watson told Bugg that AT&T had threatened to cut off all its business with IBM — some \$6 million a year — if IBM went into competition with AT&T in the teletypewriter field.

Bugg's suit maintained that representatives of IBM and AT&T issued a memo stating IBM would not put anything on the market to compete with AT&T in the communication field.

Bugg then wrote Watson a memo, resigning from the company. The plaintiff's suit alleged Watson had all of Bugg's inventions, including his teletypewriter, locked up.

The suit claimed that Bugg's patents on the teletypewriter were never assigned to IBM or in any way released.

IBM filed a motion for summary judgment, saying the "plaintiff has not been injured in his business or property and is therefore without standing to maintain this action under Section Four of the Clayton Act."

Pitney Bowes-Alpex Dies Sudden Death

DANBURY, Conn. — Pitney Bowes-Alpex, Inc. has gone out of business, leaving one less supplier in the fast-moving point-of-sale arena.

The decision was prompted by recent developments, competitive conditions and long-term prospects for the business, according to President James A. Carter.

In addition, the firm has lost \$28 million on revenues of \$29.4 million since its formation in 1970. Pitney Bowes owns 64% of the joint venture and will write off \$37 million as of Sept. 30.

Pitney Bowes-Alpex is not accepting new orders and will try to make appropriate arrangements with its contractual customers, officials said. Service may be provided by Pitney Bowes, a spokesman said.

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Three U.S. Firms Sign Pacts With Russia

Three U.S. firms have signed agreements for scientific and technical cooperation with the USSR State Committee for Science and Technology.

General Dynamics Corp. has signed a "broad five-year agreement" which identifies a "number of preliminary areas for mutual efforts in science and

technology," the company said. The initial agreement covers telecommunications equipment and computer-operated micro-film equipment.

The agreement, according to the company, could lead to production of General Dynamics products in the Soviet Union.

Under a similar agreement, Singer Co. will exchange information, specialists, production samples and conduct joint research in various fields with the USSR, including data communications and electronic instrumentation.

Monsanto Co. and the USSR have signed a five-year agreement covering cooperation on computer application in the chemical industry and the development of products for rubber compounding.

Fabritek to Acquire Data Recall, CIG Unit Purchases Fabritek Base

STAMFORD, Conn. — In a series of related moves, two memory makers are being consolidated, and Computer Investors Group, Inc. is picking up a larger installed base and adding Fabritek memories to its marketing repertoire, in addition to Data Recall products.

Fabritek agreed to acquire Data Recall Corp., and CIG Computer Products, Inc., a subsidiary of CIG, purchased Fabritek's installed base of IBM-compatible memories.

The transaction will enable Fabritek to supply CIG with memories for IBM System/3, 360/22 through 67, 370/155

and 165, as well as Univac 494, 1106, 1106-II and 1108.

Under a marketing agreement with Fabritek, CIG will purchase, market, lease and service Fabritek and Data Recall end-user memories in the U.S., Canada and Western Europe.

CIG merged Fabritek's end-user marketing and customer engineering personnel into its marketing force and field engineering subsidiary.

The combined transaction is valued at about \$10 million.

Terminal Makers Line Up for On-Line Show

PITTSBURGH — In an effort to answer customer questions about what kind of terminal to install to link up with the On-Line Systems time-sharing service, On-Line is putting on an exhibit with equipment from more than 20 firms.

The show is scheduled for Nov. 26-28 at the Pittsburgh Hilton Hotel.

"Because requirements differ from customer to customer, we thought it would serve a useful purpose to invite a number of leading terminal makers to a single site where each can demonstrate the capabilities of his products," explained Michael P. LaVigna, divisional vice-president of marketing services.

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Split IBM Into Hardware, Software: SIA

NEW YORK — IBM should be separated into at least two companies, hardware and software products/services, according to the Software Industry Association of the Association of Data Processing Service Organizations, Inc.

In addition, the Justice Department should place special safeguards and restraints on IBM to prohibit its continued control over software/services markets since it now controls these markets, the group stated in a position paper.

Horizontal Breakup

The association has proposed a horizontal breakup of IBM rather than vertical, which would divide IBM into several hardware companies, because the vertical plan could "result in incompatibility between IBM computer hardware and software and also in increased costs in the overall

development of software products."

SIA recommended that the following steps be taken to separate the new software unit.

- Separate IBM's software development and marketing from its hardware operations.

- Price all IBM software, both existing and planned, "on a basis which yields a return and reflects all associated costs, separate and apart from its hardware."

- Implement safeguards to ensure that a "competitive software industry, once established, will remain outside the domain of IBM," such as requiring that the new unit receive information on new IBM developments at the same time as independent software companies.

- Require the software unit of IBM to release comprehensive software interface specifications to all interested software firms

at the same time it releases these to its hardware organization counterpart.

- Prohibit announcement of products prior to availability for general use.

Separate Is the Word

In detailing how the units should be separated, the association called for separate physical facilities, personnel, accountability and name, which is not identified with IBM for advertising or marketing purposes.

Exchange of services and products between the divisions should be only on the "arm's length" basis as available generally to third parties.

In addition, separate physical equipment should be purchased on "arm's length" basis from any manufacturer, with no favored terms and conditions, the SIA urged.

No Preferences

Both units should be prohibited from providing "preferential references or recommendations to third parties, and there should be no advances of capital or loans between divisions, except on terms available to third parties," the SIA said.

The paper concluded by noting that the association believes "the Justice Department can quickly develop a competitive software products industry by applying the principle of the 1956 Consent Decree," and asked that the principles of the decree be enforced relative to IBM's current and previous practice of tying together the "software machine and the hardware machine."

Poppa Sees Several IBM Changes

MONTEREY, Calif. — In the wake of the initial injunctions handed down in the IBM-Telex case, several changes are likely to occur within IBM, regardless of how damages are finally assessed, according to Ryal R. Poppa, president of Pertec Corp.

Principally, the changes involve reactions by IBM to some of its policies, he told attendees at a recent Western Electronics Manufacturers Association meeting.

Poppa foresees IBM conforming more rigidly to policy. In the past, when there have been sales situations where "you can't honor the policy and win the deal," IBM has violated the

policy with the practice, he said.

Now, however, there will be a new era of enforced regimentation, which in turn will produce a "new wave of unrest" and greater attrition, he said.

In the area of new products, IBM is likely to shorten its traditional seven-year technology insertion cycle to five or six years. "IBM can afford it, but it will be very difficult for the plug-compatible manufacturers to stay with that kind of cycle."

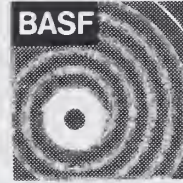
In addition, IBM will enter submarkets more rapidly than it has in the past, such as its current efforts in point of sale, Poppa predicted.

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Early closing date for december 5 issue

Because of the Thanksgiving Holiday, our December 5th issue will close two days early for all advertising. The final closing date for this issue will be:

November 21, 1973, 5:00 P.M.

Computerworld will be closed on Thursday, Nov. 22 and Friday, Nov. 23. If you have any questions please call Judy Milford, Advertising Department. 617-965-5800



COMPUTERWORLD
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Position Announcements

SOFTWARE SPECIALISTS

THE MANITOBA GOVERNMENT COMPUTER CENTRE requires several Software Specialists to provide sophisticated technical support, guidance and counsel within a dynamic large scale multi-computer environment. These positions will require a close working relationship with senior operating staff, systems engineers, customer engineers, and programmers in solving complex software/hardware problems. The incumbents will also maintain the Information System in a continuous state of full operational serviceability, and various other tasks.

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For information contact:
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COMPUTERWARES INTERNATIONAL
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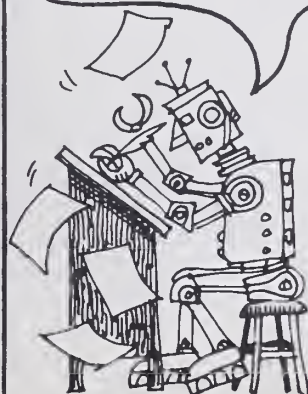
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Telex Loses \$10.2 Million Over 6 Months

TULSA, Okla. — Telex Corp.'s second quarter loss of \$6.2 million or 59 cents a share brings the six-month loss figure to \$10.2 million or 97 cents a share.

In the quarter, revenues rose to \$22.6 million from \$21.5 million in the year-ago period, when the firm earned \$704,000 or 7 cents a share.

Six-month revenues totaled \$42.3 million compared with

\$40.9 million in the 1972 period, when Telex earned \$1.4 million or 14 cents a share.

The sales value of computer peripheral equipment placed in service for the quarter fell to \$16.6 million from \$18.1 million in the same 1972 period.

As of Sept. 30, Telex had orders for sale or lease of equipment with a sales value of \$32.8 million compared with \$30.6 million a year ago.

But lease rental income showed substantial improvement, rising to \$6.2 million in the quarter compared with \$2.8 million for the same year-ago period.

Telex recently told the U.S. District Court it was \$100 million in debt and \$20 million behind in its payments.

Telex restructured its domestic credit arrangements in October as well as obligations to Information Storage Systems, its major creditor.

Of approximately \$10 million owed to ISS, Telex intends to pay another \$2 million in shipments to Itel, formerly parent company of ISS, and an \$8 million note over a three-year period beginning Jan. 31, 1974. Its total bank loan is \$39.6 million.

Storage Technology's Revenues, Earnings Soar Over Nine Months

LOUISVILLE, Colo. — Revenues and earnings more than doubled in the nine months ended Sept. 28 at Storage Technology Corp.

Revenues rose to \$38.4 million from \$17.2 million in the year-ago period. Sales accounted for \$26.5 million, up from \$12.8 million, and rental and service income totaled \$11.9 million compared with \$4.4 million in the same 1972 period.

Earnings jumped to \$4.3 million or \$1.25 a share from nearly

\$2 million or 60 cents a share in the year-ago nine months.

A \$954,000 advance to Disk Systems Corp. for research and development nearly cancelled a \$1.2 million tax credit in the 1973 period.

In the third quarter, earnings rose to \$1.2 million or 35 cents a share compared with \$1 million or 30 cents a share.

The 1972 figures include a tax credit of \$404,000, while in 1973 the firm advanced \$410,000 to Disk Systems Corp. for R&D.

Revenues jumped to \$15.4 million from \$7.6 million in the same 1972 quarter.

The 1972 results for the third quarter and nine months were restated downward after year-end review and audit.

AJ Six Months Another Record

SUNNYVALE, Calif. — Anderson Jacobson, Inc.'s revenues set a new high for the seventh consecutive six-month period. Earnings also jumped to \$200,057 or 8 cents a share compared with \$162,694 or 6 cents a share in the comparable year-ago period when a \$36,694 credit from the sale of land was included.

Six-Month Revenues Up

Six-month revenues rose to nearly \$4 million from \$2.5 million a year ago. Of this, lease and service billings rose 81% to \$3.1 million compared with \$1.7 million. Sales also grew, to \$895,752 from \$773,884 a year ago.

New orders for the half on an "if sold" basis totaled \$5 million, up 40% from the year-ago figure. This growth reflects primarily the increased demand for both the AJ630 Solid State Terminal and the AJ841 Selectronic Keyboard Printer, the firm said.

Quarterly earnings rose 44% to \$108,132 from \$75,182 in the 1972 second period, and revenues rose 57% to \$2.1 million from \$1.3 million a year ago.

Potter Cuts Year Loss

PLAINVIEW, N.Y. — Potter Instrument Co., Inc. managed to cut its loss for 1973 to \$2.3 million or 83 cents a share from \$13.1 million or \$4.76 a share in the 1972 period. Chairman John T. Potter said he anticipates 1974 will be profitable.

Revenues for the peripherals firm rose 35% to \$47.4 million from \$34.9 million last year.

Improved operations were cited as a factor in reducing the loss. Production problems reported in May and increased interest costs accounted for a sizable portion of the loss incurred this year, according to Potter.

This announcement is neither an offer to sell nor a solicitation of an offer to buy these securities. The offer is made only by the Prospectus.

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Earnings Reports

DATA 100		
Three Months Ended Sept. 30		
	1973	a1972
Shr Ernd	\$.33
Revenue	b11,073,000	\$2,712,000
Tax Cred	489,000	.....
Earnings	1,018,000	(1,531,000)
9 Mo Shr	.74	.....
Revenue	b28,164,000	6,494,000
Tax Cred	1,068,000	.....
Earnings	2,244,000	(5,469,000)

a-Adjusted to reflect accounting changes. b-Includes sales to Randolph Computer Corp.

BARRY WRIGHT		
Three Months Ended Sept. 30		
	1973	1972
Shr Ernd	\$.23	\$.20
Revenue	9,183,936	7,597,254
Spec Chg	.....	a3,288
Earnings	375,239	330,059
9 Mo Shr	.77	.64
Revenue	28,126,938	23,336,991
bSpec Cred	64,033	102,088
Earnings	1,263,736	1,058,262

a-From an adjustment. b-From sale of land.

STORAGE TECHNOLOGY		
Three Months Ended Sept. 28		
	1973	a1972
Shr Ernd	\$.35	\$.30
Revenue	15,385,000	7,602,000
Tax Cred	.....	404,000
Earnings	1,211,000	1,038,000
9 Mo Shr	1.25	.60
Revenue	38,425,000	17,182,000
Tax Cred	1,165,000	845,000
Earnings	4,331,000	1,970,000

a-Restated.

HAZELTINE		
Three Months Ended Sept. 30		
	1973	1972
Shr Ernd	\$.31	\$ 1.74
Revenue	17,967,000	14,048,000
aSpec Cred	104,000	3,311,000
Earnings	593,000	3,399,000
9 Mo Shr	.77	1.98
Revenue	54,842,000	41,190,000
aSpec Cred	509,000	3,664,000
Earnings	1,502,000	3,874,000

a-In 1973, tax credit; in 1972, tax credit plus gain on sale of property.

COMPUTER SCIENCES		
Three Months Ended Sept. 28		
	1973	a1972
Shr Ernd	\$.02	.....
Revenue	36,079,000	\$29,040,000
Spec Cred	.....	b427,000
Earnings	247,000	(595,000)
9 Mo Shr	.03	.....
Revenue	69,893,000	55,219,000
Spec Cred	.....	b863,000
Earnings	428,000	(1,803,000)

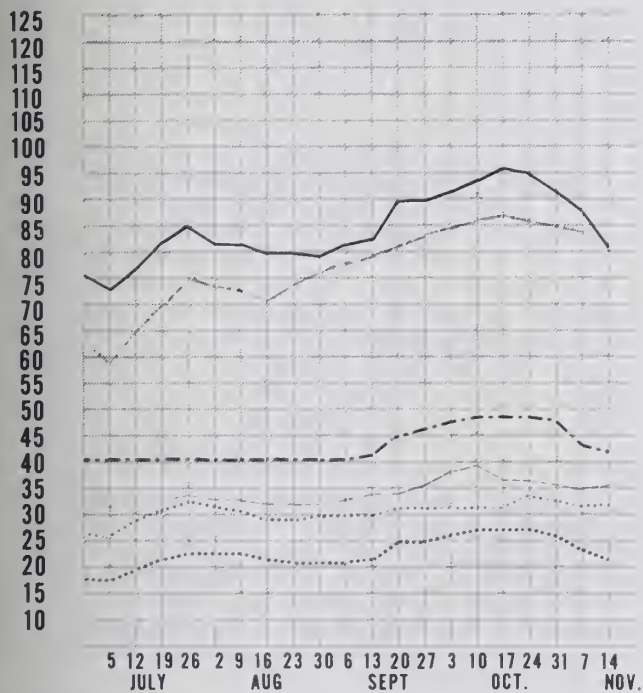
a-Restated. b-Net from subsidiary sold.

APPLIED DATA RESEARCH		
Three Months Ended Sept. 30		
	1973	a1972
Shr Ernd	\$.10	.....
Revenue	2,993,821	\$2,081,021
Earnings	123,298	(66,586)
9 Mo Shr	.22	.03
Revenue	8,082,950	6,507,234
Earnings	259,825	27,517

SINGER		
Three Months Ended Sept. 30		
	1973	1972
Shr Ernd	(000) \$1.15	(000) \$1.01
Revenue	610,649	531,418
Earnings	20,581	18,467
9 Mo Shr	3.54	-3.06
Revenue	1,807,180	1,608,549
Earnings	62,996	56,493

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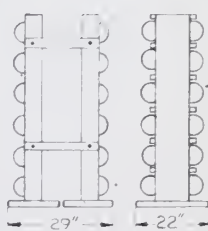
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Computerworld Stock Trading Summary

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E X C H	PRICE				
	1973 RANGE (1)	CLOSE NOV 14 1973	WEEK NET CHNGE	WEEK PCT CHNGE	
COMPUTER SYSTEMS					
N BURRDUHGS CORP	211-252	237	-3 5/8	-1.5	
N COLLINS RADIO	16- 26	24 3/4	0	0.0	
D COMPUTER AUTOMATION	5- 20	12 1/8	-2 3/8	-16.3	
N CONTROL DATA CORP	31- 62	39 1/4	-3 1/2	-8.1	
O DATA GENERAL CORP	28- 49	35 1/2	-5 3/4	-13.9	
O DATAPoint CORP	10- 21	16	-3/4	-4.4	
O DIGITAL COMP CONTROL	2- 6	2 3/8	-1/4	-9.5	
N DIGITAL EQUIPMENT	73-117	95 1/2	-16 1/2	-14.7	
N ELECTRONIC ASSOC.	4- 9	3 3/4	-3/8	-9.0	
A ELECTRONIC ENGINEER.	6- 14	10 1/4	-1 3/4	-14.5	
N FOXBORO	23- 48	36 3/4	-8 1/2	-18.7	
O GENERAL AUTOMATION	22- 55	31	-2 3/4	-8.1	
O GRI COMPUTER CORP	1- 3	1 3/8	-1/4	-15.3	
N HEWLETT-PACKARD CO	73- 99	89 3/4	-4	-4.2	
N HONEYWELL INC	92-139	91 5/8	-7 5/8	-7.6	
N IBM	249-340	287	+10 1/4	+3.7	
O INTERDATA INC	7- 14	10 1/2	-7/8	-7.6	
D MICRODATA CORP	2- 10	3 1/4	-1/8	-3.7	
N NCR	27- 46	38	-3 1/2	-8.4	
N RAYTHEON CO	22- 35	32 3/4	+2	+6.5	
N SINGER CO	45- 74	47 1/4	-1 1/2	-3.0	
N SPERRY RAND	36- 56	46 1/2	-4 3/8	-8.5	
A SYSTEMS ENG. LABS	3- 8	2 1/2	-1/4	-9.0	
O TEXAS INSTRUMENTS	83-138	113 3/4	-3 3/4	-3.1	
N ULTIMAC SYSTEMS INC	1- 11	1 5/8	-3/8	-18.7	
N VARIAN ASSOCIATES	10- 20	12 1/8	-1 3/8	-10.1	
N WANG LABS.	13- 34	22 3/8	-2 1/2	-10.0	
N XEROX CORP	138-169	138 7/8	-3 7/8	-2.7	

LEASING COMPANIES					
A BODTHE COMPUTER	0- 0	1 1/8	0	0.0	
O BRESNAHAN COMP.	1- 2	2 1/8	0	0.0	
O COMISCO INC	5- 17	5 1/8	-1 5/8	-24.0	
O COMMERCE GROUP CORP	3- 4	3 1/4	-1/8	-3.7	
D COMPUTER EXCHANGE	1- 1	1 1/2	0	0.0	
A COMPUTER INVSTRS GRP	2- 8	3 1/4	-1/4	-7.1	
O COMP. INSTALLATIONS	1- 2	1	0	0.0	
M OATRONIC RENTAL	2- 3	1 7/8	0	0.0	
A DCL INC	1- 3	3/4	0	0.0	
A DEARBORN-STORM	12- 26	16 3/4	-7/8	-4.9	
N DPF INC	4- 9	3 7/8	-1/4	-6.0	
D EDP RESOURCES	1- 3	1 3/4	+1/4	+16.6	
A GRANITE MGT	2- 6	3 1/4	+1/8	+4.0	
A GREYHOUND COMPUTER	3- 6	4 1/4	0	0.0	
A ITEL	4- 12	5 1/8	-1/2	-8.8	
N LEASCO CORP	8- 18	11 1/4	-1/2	-4.2	
O LEASPCORP	1- 8	1	0	0.0	
O LECTRO MGT INC	1- 2	1 1/2	0	0.0	
O NRG INC	4- 15	4 1/4	-3/8	-8.1	
A PIONEER TEX CORP	5- 8	7 3/8	+2 1/4	+43.9	
A ROCKWOOD COMPUTER	1- 3	1 1/4	0	0.0	
N U.S. LEASING	16- 36	20 5/8	-2 5/8	-11.2	

EXCH: N=NEW YORK I=A=AMERICAN P=PHIL-BALT-WASH
 L=NATIONAL M=MIDWEST D=OVER-THE-COUNTER
 O-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
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E X C H	PRICE				
	1973 RANGE (1)	CLOSE NOV 14 1973	WEEK NET CHNGE	WEEK PCT CHNGE	
SOFTWARE & EDP SERVICES					
O ADVANCED CDM TECH	1- 2	2	+1/8	+6.6	
A APPLIED DATA RES.	2- 4	2 1/8	-1/8	-5.5	
O APPLIED LOGIC	1- 3	1 1/2	0	0.0	
N AUTOMATIC DATA PROC	39- 94	50 1/2	-9 1/2	-15.8	
O BRANSON APPLIED SYST	1- 1	3/4	+1/2	+200.0	
O CENTRAL DATA SYSTEMS	6- 9	6 1/2	-1/4	-3.7	
D COMPUTER DIMENSIONS	2- 5	3	-1/4	-7.6	
D COMPUTER DYNAMICS	1- 2	1 1/2	0	0.0	
O COMPUTER HORIZONS	1- 6	2 1/2	+1/2	+25.0	
O COMPUTER NETWORK	1- 5	1 1/4	-1/8	-9.0	
N COMPUTER SCIENCES	2- 6	2 1/2	-1/2	-16.6	
O COMPUTER TASK GROUP	1- 2	1 1/4	0	0.0	
O COMPUTER TECHNOLOGY	1- 3	1	0	0.0	
O COMPUTER USAGE	4- 9	4 3/8	-1/4	-5.4	
O COMSHARE	1- 2	1 1/4	0	0.0	
O COMSHARE	4- 9	3 5/8	+1/8	+3.5	
O COMSHARE	4- 15	3 7/8	-1/8	-3.1	
O CYBERMATHS INC	1- 3	1 3/8	-1/8	-8.3	
O DATATAB	1- 4	1 1/8	-1/8	-10.0	
A ELECTAC COMP PROG	1- 2	3/4	0	0.0	

N ELECTRONIC DATA SYS.	29- 56	32 1/2	+1 1/8	+3.5	
O INFONATIONAL INC	1- 2	1 1/2	0	0.0	
O INFORMATICS	2- 6	5 3/4	0	0.0	
O I.O.A. DATA CORP	1- 1	3/8	+1/8	+50.0	
O IPS COMPUTER MARKET.	1- 5	1 3/8	-1/4	-15.3	
O KEANE ASSOCIATES	3- 5	3 1/2	0	0.0	
D KEYDATA CORP	6- 12	6	-1/4	-4.0	
O LOGICON	3- 7	3 3/8	0	0.0	
A MANAGEMENT DATA	2- 5	1 3/4	0	0.0	
O NATIONAL CSS INC	18- 42	30	-1	-3.2	
O NATIONAL COMPUTER CO	1- 1	3/8	0	0.0	
O NATIONAL INFO SVCS	1- 2	1 1/2	0	0.0	
P ON LINE SYSTEMS INC	12- 25	22	-1 1/8	-4.8	
N PLANNING RESEARCH	2- 7	2 5/8	-1/2	-16.0	
O PROGRAMMING METHODS	21- 25	21	0	0.0	
O PROGRAMMING & SYS	1- 1	3/4	+1/8	+20.0	
O RAPIDATA INC	3- 24	3 3/4	-1/4	-6.2	
O SCIENTIFIC COMPUTERS	1- 3	7/8	+1/8	+16.6	
O SIMPLICITY COMPUTER	1- 4	1 3/4	+1/4	+16.6	
O TRS COMPUTER CENTERS	2- 7	5 1/2	+1/4	+4.7	

O TCC INC	1- 1	1 1/4	0	0.0	
O TYMSHARE INC	6- 13	9 7/8	-3/8	-3.6	
D UNITED DATA CENTER	3- 6	3 1/4	-1/4	-7.1	
A URS SYSTEMS	4- 8	3 7/8	0	0.0	
N WYLY CORP	4- 11	4 3/4	-1/8	-2.5	

PERIPHERALS & SUBSYSTEMS					
N ADDRESSOGRAPH-MULT	12- 34	12 1/4	-1 5/8	-11.7	
O ADVANCED MEMORY SYS	5- 23	6	-1 1/4	-17.2	
N AMPEX CORP	4- 7	4 1/4	-1/2	-10.5	
O ANDERSON JACOBSON	3- 6	2 3/4	-1/4	-8.3	
O BEEHIVE MEDICAL ELEC	5- 10	5 1/2	0	0.0	
A BOLT-BERANEK & NEW	6- 12	8 3/8	-1/2	-5.6	
N BUNKER-RAMO	6- 18	9 7/8	0	0.0	
A CALCOMP	5- 16	10 1/8	-2 1/4	-18.1	
O CAMBRIDGE MEMORIES	8- 17	14	-2 1/2	-15.1	
O CENTRONICS DATA CMP	13- 38	23	-13/2	-13.2	
O CODEX CORP	9- 19	12 1/2	+1/4	+2.0	
D COGNITRONICS	1- 3	3/4	-1/4	-25.0	

EXCH		PRICE			
		1973 RANGE (1)	CLOSE NOV 14 1973	WEEK NET CHNGE	WEEK PCT CHNGE
D	COMPUTER COMMUN.	1- 4	7/8	0	0.0
A	COMPUTER EQUIPMENT	2- 3	1 5/8	-1/4	-13.3
O	COMPUTER MACHINERY	5- 13	5 1/8	-1 1/8	-18.0
D	COMPUTER TRANSCIVER	1- 6	1 1/8	0	0.0
N	CONRAC CORP	15- 32	16	-2	-11.1
D	DATA ACCESS SYSTEMS	1- 3	2	0	0.0
D	DATA 100	9- 19	13 1/4	-1/4	-1.8
A	DATA PRODUCTS CORP	2- 5	3 5/8	-1/2	-12.1
O	DATA RECOGNITION	2- 3	1 1/2	0	0.0
O	DATA TECHNOLOGY	2- 5	1 3/4	-3/8	-17.6
D	DECISION DATA COMPUT	8- 40	8	-2 3/8	-22.8
O	DELTA DATA SYSTEMS	1- 1	5/8	0	0.0
O	OILMAN CONTROLS	1- 4	2 1/4	-1/2	-18.1
N	ELECTRONIC M & M	3- 6	4	-1/2	-11.1
O	FABRI-TEK	2- 5	2 5/8	-1/2	-16.0
O	GENERAL COMPUTER SYS	5- 9	5 3/4	-1/2	-8.0
N	GENERAL ELECTRIC	56- 76	65 5/8	+2 1/4	+3.5
N	HAZELTINE CORP	5- 9	5 5/8	-1/2	-8.1
O	INFOREX INC	4- 23	4 1/4	-3/8	-8.1
O	INFORMATION DISPLAYS	1- 2	3/8	0	0.0
O	INFORMATION INTL INC	10- 15	10	-3/4	-6.9
A	LUNOY ELECTRONICS	3- 9	2 3/4	-1/4	-8.3
O	MANAGEMENT ASSIST	1- 1	3/8	0	0.0
N	MEMOREX	2- 19	3 5/8	-3/8	-9.3
A	MILGO ELECTRONICS	14- 28	19 1/8	-7/8	-4.3
N	MOHAWK DATA SCI	4- 13	4	-1/4	-5.8
O	DOEC COMPUTER SYST.	2- 6	3 1/4	-1/8	-3.7
O	OPTICAL SCANNING	2- 8	4 1/2	-1 1/4	-21.7
O	PERTEC CORP	4- 8	5 3/8	-5/8	-10.4
D	PHOTON	3- 7	3 3/4	0	0.0
A	POTTER INSTRUMENT	3- 9	4	-1/4	-5.8
D	PRECISION INST.	2- 6	3 1/4	-1/2	-13.3
D	QUANTRO CORP	5- 10	4 3/4	-1/4	-5.0
O	RECOGNITION EQUIP	4- 8	3 1/2	-5/8	-15.1
N	SANOERS ASSOCIATES	7- 18	8 3/8	-3/4	-8.2
O	SCAN DATA	1- 6	2	-1/4	-11.1
O	STORAGE TECHNOLOGY	11- 34	15	-4 1/8	-21.5
O	SYCDR INC	9- 20	10 3/4	-3 1/2	-24.5
O	TALLY CORP.	2- 14	3 1/4	-1/2	-13.3
O	TEC INC	6- 9	6 3/4	-1/2	-6.8
N	TEKTRONIX INC	30- 55	45 1/2	-1 1/2	-3.1
N	TELEX	3- 8	4 1/8	-1/8	-2.9
O	WANGCO INC	7- 13	9 1/2	-1 5/8	-14.6
O	WILTEK INC	7- 18	8 3/4	+2	+29.6

We would suggest you compare the Hazeltine 1000 with other teletypewriter-compatible CRT Terminals at its price* ...if there were any.

The Hazeltine 1000 Terminal features a 960-character display (80x12), your choice of transmission speeds up to 9600 bps as well as parity generation and checking. Options include upper/lower case, answerback and an auxiliary EIA output. All at a price that fits easily into your budget.

And of course you get the unmatched performance and reliability you've come to expect of every product bearing the Hazeltine name. For an on-site demonstration, call your Hazeltine representative.



**Hazeltine
1000**

\$ 49
mo.

* 12-month rental, maintenance included.

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